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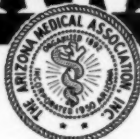
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ARIZONA MEDICINE

Journal of
ARIZONA MEDICAL ASSOCIATION



Vol. 16, No. 9, September, 1959

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Journal of Arizona Medical Association

VOL. 16, NO. 9



SEPTEMBER, 1959

Original Articles

THE ACUTE SURGICAL ABDOMEN*

John W. Howser, M.D.

Oak Park, Ill.

THERE HAVE been numerous discussions and presentations in the literature on the "acute surgical abdomen." Usually the method is to list a number of surgical conditions which together are known as the "acute abdomen," discussing the differential diagnosis of these among themselves, and then to exclude a number of medical, or "non-surgical" conditions which these simulate.

In these discussions, considerable emphasis is placed on (a) not mistaking different surgical lesions from each other and (b) not operating upon medical conditions.

With these considerations I most wholeheartedly agree, it is much to the advantage of the patient to have a relatively accurate surgical diagnosis, and certainly not to have an unnecessary operation.

However, in the philosophical discussion of these premises, so much space is spent in the differential diagnosis, that little time is left for the discussion of the proper surgical treatment of the individual surgical entities which make up the "acute surgical abdomen." As a result, many poorly timed procedures are done.

At the outset, it must be emphasized that operations on the "acute surgical abdomen" are emergent procedures, usually of a complication of a chronic pre-existing disease.

For the purpose of this paper, we will be considering that there is a surgical emergency, that the diagnosis has been correct in that a medical condition has been excluded, and that surgical intervention is indicated. We will dwell on the usual lesions constituting the "acute surgical abdomen" and discuss some points in their diagnosis, but more fully on the treatment indicated.

In general, these lesions are of two major groups. (1) The inflammatory group, and (2) The obstructive group.

Inflammatory Group

In the inflammatory group, the most common are, (a) perforated peptic ulcer, (b) inflammatory disease of the gall bladder and, (c) appendicitis.

Perforated peptic ulcer

The diagnosis of a perforated peptic ulcer, which of course can be either a duodenal or gastric ulcer, usually presents a simple problem. The typical picture of acute epigastric pain, sudden in onset, replaced in a few moments by severe general abdominal pain and the development of a rigid abdominal wall. The peristaltic sounds rapidly decrease and become absent in the classical case. Free air is seen in the upright film of the abdomen in 78-84 per cent of these cases, indicating a perforation of an air-containing viscus, of which the stomach and duodenum, to-

*Presented before the Brawley (Calif.) Medical Meeting, March 15, 1958.

gether with the colon are the ones concerned.

Such a condition, seen in the first 24 hours, constitutes a surgical emergency, and bearing in mind that this is an emergency, simple closure of a duodenal perforation, and simple excision and closure of a gastric perforation are indicated. It is not our belief, in spite of some reports to the contrary that gastric resection is indicated at this time. Gastric resection is a formidable procedure, and should be preceded by decompression of the stomach, evaluation and treatment of the patients' blood and electrolyte status. We do not feel that the presence of a chemical peritonitis constitutes good preparation for a gastric resection.

We have found that about 60 per cent of these patients having a perforated duodenal ulcer, which at operation is simply closed, have no further symptoms. The remainder will need further surgical treatment either for bleeding, intractable pain, or obstruction of the duodenum.

It is important to note that in a patient, perhaps 50 years of age or older, the symptoms of a perforated gastric carcinoma are identical with that of a perforated peptic gastric ulcer. For this reason we have, in this age group, used a transverse incision, over the right side of the abdomen, which allows of simple extension, in the event that a perforated carcinoma of the cardiac portion of the stomach is encountered. Incident to this, it may be stated that a perforated gastric carcinoma may exist and yet the hole be difficult to find in the fungating mass, and that perhaps the wisest course is to tack the omentum over the entire area of the carcinoma. These are distressing cases, and not followed by very favorable results.

In the closure of a duodenal perforation, no attempt is made to invert the area, as the tissue is extremely indurated and the inversion will slough out, recreating a larger hole in a few days. Rather a through and through closure, with a tag of omentum is usually employed. The excision of the perforated gastric ulcer in a diamond shape is imperative for exclusion, by microscopy of an early carcinoma. This hole is then closed at right angles to the longitudinal axis of the stomach, if possible in two layers.

Inflammatory disease of the gall bladder

We have chosen to call these lesions, "inflammatory disease of the gall bladder" rather than acute cholecystitis, acute hydrops, acute biliary

colic, or acute empyema, because we feel that an accurate differentiation pre-operatively is almost impossible.

We feel that clinically, development of severe pain in the right upper abdomen, together with the appearance of a rounded tender subcostal mass, constitute the clinical picture of acute inflammation of the gall bladder.

Not all such episodes require operative treatment, many will subside with conservative therapy, including parenteral fluid, glucose and protein, chemotherapy, and sedation.

However, the continued tender mass, together with the septic type temperature curve and a decrease in the peristaltic sounds constitute, in our opinion, indication for surgical treatment.

Here, also, some controversy exists as to the correct treatment: Cholecystostomy as opposed to cholecystectomy. Our position may be expressed by the following review.

In no other area is the accurate and exact anatomical exposure so important as in the dissection of the cystic duct, cystic artery and common duct, which should be done in the performance of a cholecystectomy. We feel that to try to make such a dissection in the presence of edema, phlegmon, and in some cases almost insurmountable pericholecystic adherence to other viscera, is foolhardy. We consider cholecystectomy with the accurate placing of the ligature separately on the cystic duct and cystic artery an example of "plastic surgery" of the highest type, carrying with it possible fatal outcome if a technical error in identification is made. It is our contention that in no other field of "plastic surgery" would acute phlegmon or edema be considered an indication for definitive procedures. We prefer to evacuate the gall bladder, making care to remove any impacted stones, and insert a large rubber tube into the gall bladder, bringing the tube out an adjacent stab wound. We feel that cholecystostomy is the procedure of choice in such a case. We have never been impressed by the statement sometimes made that inflammation makes the gall bladder "strip off" the liver bed, or "opens up cleavage planes" more satisfactorily.

It has been our experience that the mortality of a cholecystostomy in these cases is extremely low, and that the percentage of patients requiring subsequent biliary tract surgery is not excessive.

Appendicitis

Although the advent of the "chemotherapy" era has decreased many mortality figures in the treatment of inflammatory diseases, acute appendicitis still carries a serious morbidity and mortality.

Epigastric colic, followed by tenderness in the right lower abdomen, in either a male or female, may well indicate the diagnosis of acute appendicitis, and if accompanied by a slight fever, leucocytosis and malaise, few would argue with a diagnosis of acute appendicitis. Within the first 24-48 hours an appendectomy can usually be easily done, either through a McBurney or right rectus type of incision. We prefer the McBurney incision as there is usually less manipulation of the small bowel, and less post-operative ileus.

It is in the patient who has been sick for 48-72 hours or longer, with a diagnosis of acute appendicitis, where difficulty in choosing the proper procedure occurs. We feel, that up to 72 hours, without the presence of a mass, an appendectomy should be done. If a mass is present, either discovered pre-operatively by abdominal palpation, or intra-abdominally after the abdomen has been opened, it is wiser to discontinue the procedure, and to treat the patient by conservative means. It takes considerable professional honesty to refrain from attempting to remove such an appendix once the abdomen has been opened. The family has been told the appendix should be removed, and to fail to do so requires some explanation of the problem, which is not always understood by the concerned parties. This, however should not constitute a barrier to what one sincerely believes is the wisest course.

After 72 hours, or in the obvious presence of a mass in the right lower abdomen, surgical intervention is not indicated, in our opinion. Conservative treatment should be instituted, and over a long series of cases, this has proved to carry a lower mortality than any surgical procedure at this time. Later, after the mass has subsided, and has not been palpable for a period of six months, an interval appendectomy may be performed. The appendix will usually be found to have sloughed at the tip, and the proximal portion, with a rounded terminal end will be all that can be identified.

In the performance of an appendectomy, we do not drain intra-abdominally in any cases. On occasion, when there has been gross contami-

nation, as in a diffuse perforated appendix, we do insert a soft rubber drain down to the peritoneal level, thus draining the abdominal wall.

Obstructive Group

The second large group of lesions constituting the acute surgical abdomen is the obstructive group. In this group are included, (a) mechanical obstruction of the colon, and, (b) mechanical obstruction of the small intestine.

The cardinal signs of mechanical intestinal obstruction are relatively clear. They include colicky pain, obstipation and tympanites. As the *viable* bowel becomes mechanically obstructed, it attempts to overcome the obstruction with vigorous peristalses, and to the patient these hyper-peristaltic waves are evidenced by colic, coincident with the peristaltic wave. In the normal person, the desire to defecate represents this type of colic to a lesser degree. The obstipation becomes evident as the cessation of flow through the gut continues, and may at first be a relative condition, as the distal gut may empty, which may influence the patient to believe that actual cessation of progress has not occurred. Unless the obstruction is very high, tympanites occurs as the proximal gut becomes distended. The exact origin of the gas in the obstructed gut is difficult to prove, various origins have been ascribed to account for its presence. Probably such gas results from swallowed air, with a small amount occurring as a result of putrefaction in the obstructed segment.

Important steps

The diagnosis of mechanical intestinal obstruction is thus made on the above triad; colic, obstipation and tympanites. On physical examination, the auscultation of the abdomen is very important, to determine whether or not peristaltic sounds are present, and if so, what character they are. The peristaltic sounds in mechanical intestinal obstruction are high pitched, crescendo in tone, and have a tinkling sound to them, and they are known as "obstructive borborygmi," and when heard in the presence of tympanites and obstipation, are diagnostic of mechanical intestinal obstruction.

The further workup and surgical evaluation as to treatment of a patient who has been diagnosed as "intestinal obstruction" from this point on is very important. It is obvious that one does not want to unnecessarily explore the

abdomen in a patient as critically ill as these patients are, neither does one wish to be guilty of doing a vent type of operation below the point of obstruction.

Either of these two errors may result in the death of the patient, and mistakes of this sort can be prevented by a careful, planned course of action at this time.

The first step is to carefully do a complete physical examination, particularly noting whether a mass is present in the abdomen, together with a pelvic on a female, and a rectal digital on both male and female. Particular attention should be paid to the hernial orifices, which can account for an intestinal obstruction, with little discomfort at the actual point of incarceration. One of the most easily overlooked incarcerated hernias is the left femoral hernia.

Once this examination has been done, with only corroboration of the presence of tympanites and obstructive borborygmi, the next step is to utilize the x-ray for aid.

The first concern is the *flat film* of the abdomen, which is taken in the upright position and has been called the "scout film." This film may show distended bowel, but it must never be considered diagnostic of the site of the obstruction. It is of value in subsequent flat films as an aid in the progress of the treatment, and is of value as stated above, in that it may show air present in the gut. To depend upon a single flat film for the site of obstruction, and to commit a patient to operation on the interpretation of such a film is followed in a high incidence by errors in surgery, leading sometimes to unnecessary exploration or distal venting procedures as noted previously.

One must insist upon a *barium enema* to pinpoint the site of the obstruction either to the large bowel or to exclude the colon as the obstructed segment of gut. The introduction of barium distally can cause no injury when done with care, and if the obstruction is above the ileocecal valve, will allow the colon to fill completely with barium. If the colon will not fill, and a typical obstructed point is found in the colon, the diagnosis has been made, and the subsequent treatment can be instituted with a clear understanding of the problem at hand.

In either small gut or colon obstruction, once the site has been determined, the patient can then be evaluated as to whether or not he is at this time a candidate for surgical inter-

vention. Most of these patients have become dehydrated, and may have a severe electrolytic imbalance. Decompression is instituted by means of a Levine or Miller-Abbott tube, parenteral fluid is given, blood and electrolytic imbalances rectified. At the same time, the patient is being prepared for operation in the event the distention does not subside, and a repeat "scout film" made in perhaps 12-14 hours will show either progress or no progress and operation again is considered.

In the operation to release a small bowel obstruction, an incision is chosen which will expose the terminal ileum junction with the cecum, the collapsed terminal ileum located, and the small gut traced *retrograde* to the site of the obstruction, which is then relieved by whatever manner is indicated. It is well in such a case to avoid entering the abdomen through the old incision, should there be one, as adherent, collapsed, or distended gut is characteristically found in association with the under surface of the old wound.

If the obstruction has been determined to be in the colon, by barium enema, and the conservative measures noted above, with additional enemas having been given to break up impacted feces jammed down on a carcinoma, failed to effect relief, there are two procedures which are considered after the 12-14 hour period has been reached.

These are, cecostomy or colostomy proximal to the obstructed point in the colon. As we feel that the problem here is one of *decompression* rather than *defunctionalization*, in our hands, the procedure usually chosen is a cecostomy. There are some who do not agree with this selection and prefer a colostomy. Much can be said for either procedure, and it is difficult to be arbitrary about one or the other. We prefer cecostomy because we feel that the distended right colon will decompress through such a vent, and the cecostomy will not interfere with the subsequent mobilization of the left and transverse colon when the definitive resection of the obstructing lesion is later performed. Also, the continued function of the cecostomy is of value after the resection is done, to take the pressure off the suture line should a primary anastomosis be done. Another reason that we prefer the cecostomy is that it can be done so much easier than can a colostomy, and it must be recalled that these distended abdomens

are not easy to deal with due to the extreme friability of the distended colon. Even bringing up a loop of colon is a considerable amount of shock to the patient in this condition. We feel that the least that can be done at this point that will relieve the acute obstruction is the safest and wisest procedure.

SUMMARY

1. The acute surgical abdomen represents a clinical entity comprising many lesions.

2. Such lesions are to be differentiated from medical or non-surgical conditions which sometimes simulate these entities.

3. The acute surgical abdomen represents true emergencies which, if operation becomes

necessary, should be the paramount issue, rather than definitive treatment in many instances.

4. The correct surgical treatment is not always clear cut, and judgment and experience are of great importance.

5. These conditions can be discussed under (1) the inflammatory group, the most common being perforated peptic ulcer, inflammatory disease of the gall bladder, and acute appendicitis.

6. A second large group can be considered the obstructive group, which include both large and small intestinal obstruction.

7. Various steps in the diagnosis and surgical treatment of these lesions are discussed.

PRESIDENT'S SPEECH

TEXT OF THE ADDRESS BY THE PRESIDENT AT THE ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION, HELD AT THE TRAYMORE HOTEL, ATLANTIC CITY, N. J., JUNE 9, 1959.

DR. ORR, Dr. Gunderson, Distinguished Guests, Ladies and Gentlemen:

I am honored in this opportunity to extend greetings and felicitations to you and your colleagues in the medical profession. The American Medical Association, representing physicians in general practice and specialties in many fields, *has brilliantly earned the high position it holds in the nation.* In making this statement, I cannot logically be accused of self-flattery — because even though I am exceedingly proud of belonging to the College of Surgeons, I assure you that my credentials of membership in the college are not of the kind that entitle me to wield a knife upon my fellow man.

Because health, including bodily and mental vigor, is an essential asset in everything we do, all national progress is facilitated by progress in health. Whether it involves healing the sick, guarding the public against quackery, evaluating drugs or helping to maintain high hospital standards, the medical profession is steadily promoting better health among our people.

Indeed, Lord Bryce observed, on one of his last visits to the United States, that "medicine is the only profession that labors incessantly to destroy the reason for its own existence."

By working toward this end, the medical profession promotes national progress.

Today, as every schoolboy knows, diseases like diphtheria, scarlet fever and smallpox, which brought such terror and tragedy to so many American families a few generations ago, have all but disappeared.

In our country, medical science has virtually eliminated typhoid, pellagra and malaria, and is well on the road to conquering tuberculosis and poliomyelitis.

Even more dramatic have been the gains of modern medicine against deaths among infants.

Forty years ago, 10 per cent of the babies born in this country died before their first birthday; today the figure is below 3 per cent. During the past decade alone, deaths in childbirth dropped 65 per cent. Happily also, the nation has experienced a steep decline in deaths from childhood diseases.

For all this the nation is profoundly grateful.

Only a century ago, the average physician in America was a man with rarely more than a high school education. He learned about the treatment of diseases as an apprentice to another man who was called a physician, but who was likely to be as poorly educated as his pupil. We are told that sick people in great numbers avoided physicians as much as they sought them out, since it was uncertain whether they would profit or lose from the encounter.

But the need for better medical education could not long be ignored. And it was no accident that as medicine advanced and professional medical skills developed, in the United States, as in Europe, they were associated closely with

(Continued on Page 604)

THE MANAGEMENT OF SEPARATION ANXIETY (SCHOOL PHOBIA): REPORT OF CASE

By Boris Zemsky, M.D., Hubert R. Estes, M.D.
Wallace Diers, Ph.D., Edgar V. Brannon, M.S.W.*

A RATHER common problem coming to the attention of the child guidance clinics is that of the child who has a morbid fear of being separated from his mother. Fathers may also be involved in this syndrome directly, but ordinarily the fear of separation is focused directly on the mother and the father's contribution to the total family problem is somewhat more subtle. This situation is most prominent in children of elementary school age, but has also been observed in high school students.

It is our intention to present a case of separation anxiety, to discuss the dynamics involved in this situation and to illustrate our method of handling the problem and the rationale behind it.

Separation anxiety is a pathologic, emotional state in which child and parent are involved in a mutually hostile dependent relationship, characterized primarily by an intense need on the part of both the child and the parent to be in close physical proximity to each other. This may become manifest in several ways. Stubborn refusal to attend school is the most common presenting symptom. However, this situation may also be manifested by excessive homesickness when the child is away at camp. Inability to visit friends or relatives without the mother. It is noticeable in the clinic setting in that the child frequently refuses to leave the mother in order to come into a play room or an examining room with the examiner.

Because separation anxiety is so frequently manifested by refusal on the part of the child to attend school, this situation is frequently termed, "school phobia." However, we feel that this label emphasizes a symptom rather than the underlying true nature of the disorder, which is anxiety associated with leaving the mother for any reason, rather than simply a fear of school.

The fact that these children stay at home distinguishes separation anxiety as a neurosis, from the delinquent behavior of common truancy. Children with separation anxiety do not

go to the park or the movies or the ball game, or any other such place when they are absent from school. They go straight home to be with mother. Similarly, there is seldom any suggestion of antisocial traits in these children as there frequently is in a simple truancy. These facts were noted by Partridge(8) in 1939. In his analysis of 50 cases of truancy, he found 10 that he labeled the "psychoneurotic" group. In these cases, he recognized the importance of maternal over-attachment, and stressed the intrapsychic dynamics of the neurosis in the child.

There have been several reports(1, 2, 4, 9 and 10) on the phenomenologic aspects of this condition, and findings are similar in all of them. The ages of the patients varied from those of pre-school levels to those of adolescence. Statistically, girls were involved in this neurosis more frequently than boys. Economic and cultural factors seemed to have no effect and intelligence usually was average to superior.

Intrapsychic Dynamics Stressed

The intrapsychic dynamics of the child have been stressed by several authors. Klein(7) divided anxiety about school into three categories: (1) fear of teacher, (2) fear of other pupils, and (3) fear of school work with expectation of failure. Thus, although he recognized fear of separation from the mother in the paper, he stressed fear of school as being of primary importance. Other authors have placed more emphasis on the importance of the current relationship between the child and his parents.

Certainly, there is no question but that the child with separation anxiety is strongly ambivalent toward his mother with unconscious death wishes so strong that he must constantly be at her side to assure himself of her safety. However, this neurosis never exists in the psyche of the child alone, but is always intimately associated with a complimentary neurosis in the mother. There is always a highly pathologic and highly charged emotional situation between the two people, mother and child, and the symptoms of the child can be fully understood only through an examination of the relationship between them.

In 1941, Johnson and her co-workers(6) pre-

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sented a paper on this subject in which the interdigitation of mutual neurotic patterns of mother and child was clearly shown. Their work was facilitated by their technique of collaborative therapy. Since that time, other studies using similar techniques have added to our understanding of this situation. One of the latest is the delightful account by Eisenberg(3) in which the communication of anxiety between mother and child in the clinical setting was very clearly described.

The dynamics of the situation seem to be as follows: The early dependency relationship between mother and child has never been adequately resolved. Superficial observation may suggest that mother and child have matured normally in this regard, but detailed examination almost invariably reveals evidence to the contrary. There is usually a history of excessive coddling or over-dependence in one form or another.

Frequently, the mother is not receiving adequate gratification of her emotional needs within her marriage. It is common to see a lack of interest in the mother on the part of the husband with extra-marital affairs, excessive drinking, abuse of the mother, and general lack of harmony and companionship characterizing marriages.

Regression

In this setting of a poorly resolved dependency relationship between mother and child and emotional hunger on the mother's part for gratification of her own needs, the child may experience a situation that arouses his anxiety and leads to a state of increased dependence on the mother. Such a situation might be the development of some organic illness in the child, or injury, or some social problem that may have come up in the life of the child. In this situation, the child temporarily becomes anxious and tends to regress to an earlier level of dependence on the mother.

This regression under more normal circumstances would be only transient and not serious. However, because of her own needs, the mother exploits the circumstances of the child's temporarily increased dependence upon her to bind him to her in a malignant, mutually hostile dependent relationship. Through this relationship then, she obtains at least partial gratification of her previously unsatisfied dependency needs and also finds an outlet for the expression of

her unconscious hostility. The mother achieves this by fostering and encouraging the child's over-dependence upon her and communicates to the child her unconscious desire for this relationship. Children are especially perceptive to the unconscious attitudes of their parents, and they tend to identify with them and comply. Thus, sensing his mother's strong desire for him to remain in this overly-dependent relationship, the child does so.

An examination of the relationship between the mother and her own mother may reveal a similar situation. There is also likely to be a highly charged unresolved hostile dependent relationship between the mother and her mother so that the situation between mother and child more or less duplicates the situation in the previous generation.

Because a parent's ability to give emotionally is dependent upon the extent to which he has been given during his own childhood, mothers with such a background may resent giving to their child what was not given to them. These circumstances bring about a feeling of hostility toward the child. Guilt over this hostility interferes with the ability to set firm limits with the child, so that the child does not have the security of well defined limits on his behavior. His attempts at being independent and self-assertive however, threaten to interfere with the mother's neurotic satisfaction and are met with hostile outbursts that intimidate the child and make him fearful of expressing his own normal aggressive impulses. Such inhibition acts only to perpetuate the immaturity of the child. We may also see seductive behavior on the part of a parent toward a child of the opposite sex. All manner of over-close physical contact may be reported, such as children being bathed by a parent of the opposite sex, sleeping with parents and ignoring bathroom privacy.

Hostility

Children react to this expression of hostility, whether it is overt or disguised, with the development of hostility toward the parent. This is frequently expressed as an exploitation of the mother's guilty inability to set limits, and this combined with the patient's further exploitation of the mother's desire to have him dependent on her and to do things for him, affords opportunities for the exercise of considerable control of the mother by the child. Such children may become exceedingly demanding of their

mothers as long as they stay within the framework of the mutual neurosis that bind them. This hostility within the child, and the guilt connected with it, further bind him to the mother, perpetuating the neurosis and necessitating his constant attendance near her to assure himself that his unconscious death wishes toward the mother do not actually materialize.

Since the setting of limits is inevitable in the classroom and pupils must occasionally be frustrated, the child in such a situation finds a convenient object on which to displace his anger, and, thus, the school teacher may become a phobic object. We frequently find that the parents agree with the child that the school teacher is too strict, or against him for some reason, so that the neurotic pattern in the child simply becomes reinforced.

The case of Mary is a classic example of this type of emotional disorder. Mary, a white, nine-year-old female, was referred by the family pediatrician with the presenting complaint of "fear of school." The parents had been concerned with this problem from the first day the child entered school. She vomited practically every day before going to school and was most anxious and fearful. If she were permitted to stay away from school, her symptoms disappeared quickly and she was relatively free of anxiety. Mary's symptoms were chronic until the latter part of the third grade when the situation became so acute that she was placed on homebound teaching. While on homebound teaching, the patient presented no symptoms; however, the family pediatrician recognized that the child would need help in correcting her problem.

Mary lives in the home of her natural parents. The maternal grandparents live in the city and are described as being extremely close to the patient. The family has a low average standard of living. The father is under treatment for a convulsive disorder which resulted from a head injury sustained approximately 12 years ago. The mother was most co-operative during the evaluation; however, she was extremely anxious and threatened. She appeared for the interviews compulsively groomed. The father did not participate in the study even though this was requested. The mother describes the father as a very passive, dependent man.

History

Longitudinal history reveals that the parents

were upset when the mother became pregnant with the patient three months after marriage. The father was in college and the mother was working to help support the family. The mother was "violently ill" during the entire nine months. The family was living with the maternal grandparents at the time, and the grandmother was also extremely upset over the pregnancy. She continually reminded the mother and father that they should not have permitted this pregnancy.

The mother's delivery of the patient was natural with no complications. The child's infant months were characterized by a great deal of crying and considerable vomiting. Toilet training was started at four and one-half months and completed at five months. She was dry at night at the age of one year. However, she had difficulty with bowel movements until 14 months of age. She could not have a natural bowel movement and it was necessary for the mother to use suppositories.

The patient had poor sleep habits. The mother had to rock and fondle the patient to get her to sleep. "She did not like to be left alone — in fact, I could never leave her alone." The mother gave as an example, when she would go shopping and would have to go to the restroom, the patient would become hysterical if she did not take her with her. At the age of two and one-half, the patient is alleged to have had a "spastic stomach."

The patient slept with the mother until age six. At times the mother would attempt to transfer the child to her own room, but the father would encourage the mother to sleep with the child to keep her from crying. The parents never left the patient with a baby sitter with the exception of the maternal grandmother. "We always stuck close to home in case Mary got upset and needed us." Prior to entering the child in regular school, the parents had concluded that Mary was brilliant. In fact, the mother refers to her in her early formative years as "the whiz kid." During the patient's first day in school, she became quite upset and the teacher suggested the mother take her home. The mother protested and insisted on staying in the classroom for a while. After a period of time, the mother "sneaked out of the classroom," but would frequently peep in on the child. The mother, in a rather surprised tone of voice, stated, "But she was fine."

During the child's first year in school, the

maternal grandparents moved from the East to the Southwest and shortly thereafter Mary's family followed. The mother felt the child adjusted fairly well during her second year of school except for occasional vomiting in the mornings and the child's general resistance to getting off to school. At the beginning of the third grade, she became quite hysterical with frequent crying spells in school. The school, with the parents permission, changed classes, but there was no appreciable change in Mary's behavior. It was at this time that she was placed on homebound teaching.

Family history reveals the mother was an only child who came from a "very close, loving, kissing family." She was quite shy in school and would never participate unless she was called on directly. After she completed high school, she obtained a modeling job against her parents wishes. She discontinued this vocation after a short period and returned home where she remained even following marriage. She feels she had a very happy childhood and does not remember any unhappy experiences. When frustrated or angry, she would go to her room and read. She recalls the only time she saw her mother angry was, "once she threw a washcloth at me — this was a most awful experience."

The father was also an only child. His father died when he was six years old and he, too, was very close to his mother. The mother feels the paternal grandmother also objected strongly to the father's marriage. The father frequently talks with his wife about his violent temper but the mother cannot remember any temper outbursts. The parents had no insight into their problem. The mother has a constant fear that something will happen to the child and also feels quite guilty when away from the patient, "as though I have cheated her."

Evaluation Experience

Following intake interviews with the mother, the child was scheduled for a psychological evaluation. This was the child's first direct contact with the clinic and she was accompanied by both her mother and the maternal grandmother. The patient entered the examining room with some degree of reluctance but did so with reassurance from her mother that she would wait for her. It was subsequently revealed that the mother immediately departed, leaving the grandmother to wait for the patient.

In general conversation, the patient was asked why she had come to the clinic. This precipitated a tearful outburst with crying and gagging which seemed to have a very forced quality and suggested that the patient was consciously trying to make herself sick in order to avoid the situation. The examiner quietly waited out this eruption and when calm was restored, there was no evidence of this upset in the patient's behavior.

However, following the administration of the verbal section of the intellectual evaluation, there was a second and more violent outburst in which the patient expressed the feeling that no one was waiting for her and, in response to the examiner's reassurance, angrily accused him of lying to her. She left the examining room and discovered her mother had departed. The grandmother initially attempted to soothe and cajole the patient and then resorted to bribery in attempting to get her to return to the examining room. The examiner remained uninvolved and awaited developments.

The grandmother finally led the patient back to the room and told her that she would remain in the room with her. When the examiner set limits on this, the grandmother then informed the patient that she would leave the door open and remain just outside. The examiner again set limits by insisting the door would have to be closed. The patient finally returned to her seat and the grandmother departed, carefully leaving the door slightly ajar.

For a brief period the patient continued to vent anger and hostility toward the examiner who did not react. When calm was again restored, she proceeded through the balance of the intellectual evaluation without further incident and with a remarkably high level of efficiency. Attempts to obtain additional psychological data were greeted with a very hurried, "get through" response. Her efforts were quite impulsive and the examination was terminated as it became apparent that the patient's co-operation could not be further enlisted.

Intellectual evaluation revealed a child of clearly superior intellectual endowment. There was a notable degree of scatter of subtest scores, ranging from low average to very superior. However, most of the tasks presented were executed at a high bright normal to superior level. The most remarkable factor was the patient's co-operative and efficient performance between episodes of marked emotional upset.

There were occasional hostile expressions, primarily in the form of negativism, with a tendency to give up rather readily, but the patient responded to the examiner's urging and usually achieved additional successes. So far as endowment is concerned, there is no question of this child's capacity to readily cope with a regularly graded school curriculum.

At the time of psychiatric interview, Mary was in a marked hysterical state and refused to accompany the psychiatrist to his office. With gentle, firm insistence, the patient finally disengaged herself from her mother's arms and with loud sobs accompanied the examiner. As previously, this emotional state cleared quite abruptly and Mary became co-operative and responsive.

Examination and Diagnosis

Examination revealed an attractive, neat child who related in a pseudo-adult fashion. She was found to be socially isolated at a contemporary level both at school and in the neighborhood. However, Mary expressed positive feelings toward school, teachers and peers without insight into the relationship between her illness and adjustment. Apparently, from her description, this child has observed emotional outbursts, similar to her own, on the part of her father. When returned to the waiting room the emotional state present on departure was reinstated. The examiner's impression was consistent with that of other staff members with emphasis on the inadvisability of allowing this child to remain out of school.

This case was discussed in staff conference with each member of the clinic team presenting his findings and conclusions. The dynamics in this case were manifestly clear and classic. Not only did the mother reveal rejection of this child from the time of conception (nausea throughout pregnancy) but the maternal grandmother, who has been a central figure in this situation, also rejected the child. One sees extreme feelings of ambivalence toward Mary which are defensively handled through a reaction formation of smothering over-protection and the development of a symbiotic type of relationship typically seen between mother and child in cases of this kind. The child's superior intellectual endowment very probably made her more sensitive and reactive to this unhealthy climate.

A diagnosis of psychoneurosis, anxiety reac-

tion, separation anxiety manifested by a school phobia, was made. It is clinic policy to regard school phobias as emergencies. This family was immediately involved in an intensive treatment program, involving the mother and child as well as closely co-ordinating the handling of this case with school authorities. The most important step, which occurs initially, is to get the child back into school by whatever means are necessary. To allow the child to remain at home only fosters and perpetuates an unhealthy pattern which may become fixed. The school phobia, however, is only a symptomatic manifestation of the basic pathology which must be handled directly with the family.

Therapy Sessions

At the first therapy session with Mary, she was informed that she would have to return to school immediately. The therapist shared with her her fears connected with school in a sympathetic manner, but nevertheless, firmly insisted that proper handling of the program necessitated her immediate return in spite of her fears. A positive transference developed quickly and the patient seemed to welcome her interviews with the therapist and to have feelings of friendship toward him. It was apparent in this case, as it has been in many other cases, that the firm setting of limits about return to school did not interfere with the development of a positive transference. On the contrary, the patient responded positively to this display of strength.

Initially, there was considerable resistance on the part of the patient when it came time for her to leave her home and go to school. It was necessary to work with the school, have the truant officer come to the house, and firmly insist that Mary accompany him to school. There were several very violent scenes at this time, but therapist, parents and school authorities all combined to demonstrate a policy of absolute firmness in this regard. Finally, when Mary saw that her hysterical outbursts at home did not prevent her from going to school, she stopped them and there was no further difficulty.

During her contacts with the therapist, Mary began to become aware of her extreme over-dependence on her mother, could see how this had been affecting her adversely, and how it had been a source of gratification to both of them. She also came to the point where she realized that it was a solution that could not possibly be permanent.

During the course of her therapy, she attended a summer camp (Tucson Jewish Community Center, summer day camp) without any difficulty, but shared some inner fears concerning this with her therapist. This did not last long however, and she was soon enjoying this experience without undue concern about being away from her mother. Finally, after being seen for 13 interviews, therapy was terminated with what appeared to be not only relief of the initial symptoms of anxiety over separation from her mother, but also a real ego change in both the patient and her mother in the direction of maturation.

Mary's mother was also seen for a total of 13 therapy hours. At the onset, it was directly stated to the mother that Mary must return to school immediately. Mother was told that an arrangement had been set up with the truant officer to return Mary to school if the mother needed assistance. The mother's hostility, evident in the early hours, was clearly illustrated with her handling of this plan. She told her daughter, "Your parents will have to pay \$1,000 fine and spend 60 days in jail if you don't go back to school."

At first, hostility was directed to the child as clearly shown by the following, "Bless her heart, she eats like a horse, and I am on heavy sedation." Mother further did not co-operate at the onset in that early therapy hours with Mary revealed that, "Mother did not make me return to school." Also, the truant officer, not completely understanding the problem and the clinic's approach, was not firm with Mary or her mother at first. This was worked through with all concerned and following this Mary was returned to school.

During these early treatment hours, the hostility of mother was drained off onto the truant officer and the therapist. Also during the early therapy hours it was ascertained that Mary reluctantly was attending school and that mother was continuing to do everything for her outside of school hours. This was repeatedly interpreted to mother and had to be worked through hour after hour.

Summer school vacation started shortly after therapy was initiated. Here again the importance of teamwork is pointed up. Plans were made for Mary to attend one of the local day camp schools. Mother's resistance was evident in her refusal to pay the camp fee of \$1 per week. The thera-

pist insisted Mary must go to camp school, so mother arranged to pay for her tuition by driving children to the school with a great show of hostility. Mary again went through separation anxiety the first day of camp. Mother's role again was demonstrated when in the following hour she related, "I finally snuck back to see how she was getting on, and there she was playing, bless her heart." Here the mother's hostility was displaced onto the camp directors.

By the sixth hour, Mary was attending camp and mother began to show some insight, "Maybe I have a guilt complex, maybe I did too much for her." During this hour, mother brought up her rejection of her pregnancy with Mary, "I didn't want it, a horrible pregnancy, vomited right up to labor. No more babies for me." Again resistance was demonstrated by mother in that she was not planning to renew Mary's camp enrollment for the second period. This was worked through with the mother resulting in Mary not only returning to camp, but mother agreeing to pay a small fee.

Improvements Noted

During the eighth hour, mother related to Mary being treated as a contemporary by her. Also mother's over-protectiveness was worked with. "She has me over a barrel. I don't want her to dislike me." In addition, the therapist worked with mother's related hostility. The following hours showed a great deal of movement. Mary was attending camp regularly and mother was beginning to understand her hostility, guilt and over-protectiveness. "I am now conscious of it, and not doing as much."

During one of these hours, mother states, "As she gets better, I get sicker." Then for the first time mother was able to work with her own dependency needs as related to her own mother. She brought up early memories of sleeping with her mother. During this time, mother had a return of her needs related to Mary. This was evidenced by her asking Mary every morning before time for departure for school, "How do you feel this morning? Don't be frightened," etc. Mary responded by having some of her anxiety return. This again was worked through, and, at the next hour, mother was able to state, "I don't question her anymore." Mother also reported Mary was doing things alone and she liked it. Mother said, "I was shocked to know she wanted to be alone."

During the final hours, mother continued to

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Examination and Diagnosis

Examination revealed an attractive, neat child who related in a pseudo-adult fashion. She was found to be socially isolated at a contemporary level both at school and in the neighborhood. However, Mary expressed positive feelings toward school, teachers and peers without insight into the relationship between her illness and adjustment. Apparently, from her description, this child has observed emotional outbursts, similar to her own, on the part of her father. When returned to the waiting room the emotional state present on departure was reinstated. The examiner's impression was consistent with that of other staff members with emphasis on the inadvisability of allowing this child to remain out of school.

This case was discussed in staff conference with each member of the clinic team presenting his findings and conclusions. The dynamics in this case were manifestly clear and classic. Not only did the mother reveal rejection of this child from the time of conception (nausea throughout pregnancy) but the maternal grandmother, who has been a central figure in this situation, also rejected the child. One sees extreme feelings of ambivalence toward Mary which are defensively handled through a reaction formation of smothering over-protection and the development of a symbiotic type of relationship typically seen between mother and child in cases of this kind. The child's superior intellectual endowment very probably made her more sensitive and reactive to this unhealthy climate.

A diagnosis of psychoneurosis, anxiety reac-

tion, separation anxiety manifested by a school phobia, was made. It is clinic policy to regard school phobias as emergencies. This family was immediately involved in an intensive treatment program, involving the mother and child as well as closely co-ordinating the handling of this case with school authorities. The most important step, which occurs initially, is to get the child back into school by whatever means are necessary. To allow the child to remain at home only fosters and perpetuates an unhealthy pattern which may become fixed. The school phobia, however, is only a symptomatic manifestation of the basic pathology which must be handled directly with the family.

Therapy Sessions

At the first therapy session with Mary, she was informed that she would have to return to school immediately. The therapist shared with her her fears connected with school in a sympathetic manner, but nevertheless, firmly insisted that proper handling of the program necessitated her immediate return in spite of her fears. A positive transference developed quickly and the patient seemed to welcome her interviews with the therapist and to have feelings of friendship toward him. It was apparent in this case, as it has been in many other cases, that the firm setting of limits about return to school did not interfere with the development of a positive transference. On the contrary, the patient responded positively to this display of strength.

Initially, there was considerable resistance on the part of the patient when it came time for her to leave her home and go to school. It was necessary to work with the school, have the truant officer come to the house, and firmly insist that Mary accompany him to school. There were several very violent scenes at this time, but therapist, parents and school authorities all combined to demonstrate a policy of absolute firmness in this regard. Finally, when Mary saw that her hysterical outbursts at home did not prevent her from going to school, she stopped them and there was no further difficulty.

During her contacts with the therapist, Mary began to become aware of her extreme over-dependence on her mother, could see how this had been affecting her adversely, and how it had been a source of gratification to both of them. She also came to the point where she realized that it was a solution that could not possibly be permanent.

During the course of her therapy, she attended a summer camp (Tucson Jewish Community Center, summer day camp) without any difficulty, but shared some inner fears concerning this with her therapist. This did not last long however, and she was soon enjoying this experience without undue concern about being away from her mother. Finally, after being seen for 13 interviews, therapy was terminated with what appeared to be not only relief of the initial symptoms of anxiety over separation from her mother, but also a real ego change in both the patient and her mother in the direction of maturation.

Mary's mother was also seen for a total of 13 therapy hours. At the onset, it was directly stated to the mother that Mary must return to school immediately. Mother was told that an arrangement had been set up with the truant officer to return Mary to school if the mother needed assistance. The mother's hostility, evident in the early hours, was clearly illustrated with her handling of this plan. She told her daughter, "Your parents will have to pay \$1,000 fine and spend 60 days in jail if you don't go back to school."

At first, hostility was directed to the child as clearly shown by the following, "Bless her heart, she eats like a horse, and I am on heavy sedation." Mother further did not co-operate at the onset in that early therapy hours with Mary revealed that, "Mother did not make me return to school." Also, the truant officer, not completely understanding the problem and the clinic's approach, was not firm with Mary or her mother at first. This was worked through with all concerned and following this Mary was returned to school.

During these early treatment hours, the hostility of mother was drained off onto the truant officer and the therapist. Also during the early therapy hours it was ascertained that Mary reluctantly was attending school and that mother was continuing to do everything for her outside of school hours. This was repeatedly interpreted to mother and had to be worked through hour after hour.

Summer school vacation started shortly after therapy was initiated. Here again the importance of teamwork is pointed up. Plans were made for Mary to attend one of the local day camp schools. Mother's resistance was evident in her refusal to pay the camp fee of \$1 per week. The thera-

pist insisted Mary must go to camp school, so mother arranged to pay for her tuition by driving children to the school with a great show of hostility. Mary again went through separation anxiety the first day of camp. Mother's role again was demonstrated when in the following hour she related, "I finally snuck back to see how she was getting on, and there she was playing, bless her heart." Here the mother's hostility was displaced onto the camp directors.

By the sixth hour, Mary was attending camp and mother began to show some insight, "Maybe I have a guilt complex, maybe I did too much for her." During this hour, mother brought up her rejection of her pregnancy with Mary, "I didn't want it, a horrible pregnancy, vomited right up to labor. No more babies for me." Again resistance was demonstrated by mother in that she was not planning to renew Mary's camp enrollment for the second period. This was worked through with the mother resulting in Mary not only returning to camp, but mother agreeing to pay a small fee.

Improvements Noted

During the eighth hour, mother related to Mary being treated as a contemporary by her. Also mother's over-protectiveness was worked with. "She has me over a barrel. I don't want her to dislike me." In addition, the therapist worked with mother's related hostility. The following hours showed a great deal of movement. Mary was attending camp regularly and mother was beginning to understand her hostility, guilt and over-protectiveness. "I am now conscious of it, and not doing as much."

During one of these hours, mother states, "As she gets better, I get sicker." Then for the first time mother was able to work with her own dependency needs as related to her own mother. She brought up early memories of sleeping with her mother. During this time, mother had a return of her needs related to Mary. This was evidenced by her asking Mary every morning before time for departure for school, "How do you feel this morning? Don't be frightened," etc. Mary responded by having some of her anxiety return. This again was worked through, and, at the next hour, mother was able to state, "I don't question her anymore." Mother also reported Mary was doing things alone and she liked it. Mother said, "I was shocked to know she wanted to be alone."

During the final hours, mother continued to

work with and understand her role in Mary's problem. A sign of this improvement was mother's report during the last hour, "All is just fine. I didn't ask mother to come and baby sit. Mary is home alone." It is of interest that throughout her treatment sessions, the mother mentioned the father only once and this was in relation to insurance.

As a final note, Mary's mother was contacted recently. She reported Mary attending school regularly and doing beautifully, "She is a wonderful child and I am a happier mother."

SUMMARY

A case of separation anxiety (frequently referred to as school phobia) has been presented. The literature has been reviewed and the dynamic concepts operating have been presented. The collaborative therapy in this case was summarized. It was emphasized that these cases are handled as a psychiatric emergency.

At the Tucson Child Guidance Clinic, we use the total team approach involving the professional staff of the clinic, professional personnel of the school system guidance and counseling department, teacher and principal and the parents (usually mother).

We firmly believe that these youngsters never should be in homebound training programs because this tends to foster the poorly resolved dependency relationship between mother and child, therefore tending to produce a chronic problem. We further strongly believe that one important point in therapy is the immediate return of the youngster to school, if necessary using the services of the truant officer, juvenile court, and

teaching personnel. We have demonstrated that using therapy based on well established dynamic concepts these cases can be handled successfully with the child and mother in resolving their mutual dependent relationship. It is felt that professional assistance, including treatment of the parent, usually the mother, and child is essential. We feel many cases may go unrecognized and present this report in hope of focusing on this problem, resulting in early recognition and treatment.

The progress made with this case was exemplified most dramatically by Mary herself. A cousin of hers was having a similar problem. When Mary heard that he, too, was afraid to go to school, she was overheard saying to him, "You go to school. It doesn't make any difference if you are afraid. I don't care if you vomit all the way there. You keep going and stay there."

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the great universities where the spirit of inquiry and instruction were at the forefront. For in medicine, as with all scientific discovery, professional progress flourishes best in an atmosphere of scholarly inquiry.

In reflecting upon the well-nigh unbelievable advances of medicine during these past 100 years, we do not forget the nursing profession and our hospitals, which developed side by side with the medical sciences.

It was not until our War Between the States that, in America, any sizable number of volunteer women — and I stress the word volunteer — recognized that care could help bring the sick and injured back to health. The help they gave

was in doing only the simple things — keeping patients clean, feeding them, changing their bandages. Nurses were not then expected or trained to do more. Today the leaders of the nursing profession are college graduates. Many hold Masters' degrees and Doctors' degrees. Within half a century, the nurse has been transformed from a sympathetic attendant to a thoroughgoing professional.

Even as late as 1911, when I joined the military service as a cadet at West Point, the presence of a trained nurse in any military hospital was a rarity. In fact, trained nurses were on duty in only four military hospitals in the United States.

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A NEW ABSORPTIVE FOR MENSTRUAL HYGIENE*

By Karl John Karnaky, B.A., M.D., Houston, Texas

FOR MANY years, man has been seeking ways to absorb the menstrual flow during a woman's menstruation, so that during this period she could live her normal life. The problem of disposing of or absorbing the menstrual flow has been mostly based on unphysiological concepts of the normal mechanisms of the menstrual flow, and especially on misinformation about normal vaginal canal physiology.

An understanding of the normal physiology of the vaginal walls; their structure; their secretion with all its organic and inorganic chemistry; the hydrogen concentration (pH) of the normal vagina before, during, and after the menstrual flow; the bacterial flora; the glycogen content of the vaginal wall; the glucose content of the vaginal secretion; and the anatomy of this structure is also essential to the study of the disposal or the absorption of the menstrual flow as it comes into the vagina from the uterine cavity and through the cervical opening.

Normal Menstruation

The normal physiology of menstruation is well known by all physicians; i.e. that the pituitary gland gives off secretions which reach the ovaries and cause one of the ovaries to extrude normally one egg (follicle). If this egg is not fertilized, then the endometrium begins to desquamate and the spiral arteries and veins, especially the veins, begin to pour out the blood which washes off the desquamated epithelial lining of the uterus into the vagina, where there are many kinds and forms of pathogenic and non-pathogenic vaginal micro-organisms. These micro-organisms begin to metabolize the menstrual blood, serum, proteins, trace elements, enzymes, and other food material, and to grow and multiply. Some of the odors which occur during the menstrual cycle are due to the bacterial waste products and gases that the bacteria give off during metabolism of the menstrual flow which contains protein, carbohydrates and fats. The highly buffered pH produced during the menstrual flow is due to bacterial action on this blood within the vagina.

It appeared to this investigator while treating many women during the menstrual flow, that the two present methods of absorbing the menstrual flow were far from adequate. It was thought that some method should be devised

so that as soon as, or just before the menstrual flow reaches the vagina, where it begins to deteriorate, it could be changed into some non-toxic, non-irritating, inert salt or salts, or some inert chemical which no longer is blood, but dry, fine powder. This changed menstrual blood must be non-toxic and non-irritating. This hemoglobin material should be of such nature that some of it can be reabsorbed back into the general circulation and thereby prevent the woman from losing the entire amount of blood passed at each menstrual period. Some of this hemoglobin material apparently is re-absorbed as salts and re-utilized in the hemopoietic system.

Chemicals for Menstrual Hygiene

After this investigator had worked clinically for more than 25 years on the normal and abnormal physiology of the vagina, and especially on the treatment of vaginal infections, he came to the conclusion that the infected vagina in most instances must be treated during the menstrual flow, because it is during this period that these vaginal pathogens grow and multiply. This investigator has experimentally inoculated *Trichomonas vaginalis* into the vagina of charity clinical patients many times and observed that the trichomonads did not grow and multiply until the patient menstruated. It was also observed that during and right after each menstrual period, in these inoculated patients, that the number of trichomonads increased, but between each menstrual flow, the number decreased. It was also observed that it was not until there were a large number of trichomonads after the occurrence of several menstrual periods that signs and symptoms were produced or complained of.

This writer has also treated over 10,000 women (charity and private cases) during menstrual flow with vaginal infections during the past 25 years. He has observed many vaginal infections disappear, which would not disappear until after these cases were treated during the actual menstrual flow. This has been found to be the case in *Trichomonas vaginalis*, *Candida albicans* and most all vaginal infections.

It was during this 25 years that this investigator, who has used many different kinds of medication in the vagina during menstrual flow that he came to discover an entirely new approach to the "woman's personal hygiene."

*From the Obstetrical and Gynecological Research Institute, Houston 4, Texas.

It has been commonly observed during the menstrual flow that the internal tampon and/or the external pads are not the answer to the elimination of the blood that comes from the uterus into the vagina.

The first important menstrual protection device used during the menstrual flow was the external pad, but this only disposed of the menstrual blood after it had traveled the entire length of the vaginal canal and become contaminated with the billions of bacteria in the vagina and had been acted on by the vaginal enzymes, and after it had reached the perineum where there are still more micro-organisms and contaminated perspiration. The vaginal bacteria causes putrefaction, odor, etc., before it is absorbed into and onto the external pad or pads. Even after the menstrual blood is absorbed onto and into the external pad, the bacterial and enzyme decomposition still goes on.

The next important advancement in the disposal of the menstrual flow was the internal tampon, on which this investigator did a great deal of research over the years and has written several papers on it. This investigator showed that it is not harmful.

The internal tampon was an advance over the external pad for the disposal of the menstrual blood because some of the blood was absorbed as it came out of the uterus into the vaginal canal. It was soon observed that the internal tampon not only absorbed the menstrual blood, but that the absorbed menstrual blood was always loaded with many kinds and shapes of pathogenic and non-pathogenic vaginal micro-organisms; that the abnormal vaginal micro-organism grew in this serum and blood in and on the internal tampon, and that during their metabolism of this menstrual blood, they produced a highly buffered alkaline pH which greatly favored the growth of all vaginal pathogens.

It was also observed that there is not enough absorption of the menstrual blood by the internal tampons, so that the menstrual blood runs down the internal tampon and on down the tampon's string allowing blood and serum to drip off of the end of the string. It was also noted that the string is almost always found in the area between the buttocks and extending to the anus. Here the string is contaminated with fecal matter and more micro-organisms which also contaminate the vaginal canal. The string also is almost always soaked with perspiration from the anal and perineal regions which are

always loaded with pathogenic and non-pathogenic micro-organisms. These micro-organisms also gain entrance into the vaginal canal. The user also contaminates her hand with the bacteria that are on this string. Many women open the labia and fold up this string and place it just within the introitus where it absorbs secretion from this region and aids in contaminating the vagina.

This investigator has been conducting a "Menstrual Disorder Clinic" for the past 22 years and has come to realize that someone in the medical field should try to come to the aid of these women, who should have some improvement for the handling of their menstrual flow, since the external pad is not the complete answer and the internal tampon is only a very small partial answer. Many women have told me when I ask them to get on the table, that they can not, because "the curse was on," their way of telling me that they were menstruating. To many women the menstrual flow is a very troublesome thing and anything that can be done to eliminate it would be gladly accepted. Patients who have used this new method have been appreciative.

With the above in mind, and after seeing thousands of women during their menstrual flow with menstrual blood running down their legs and thighs, all over their perineum and even on their underclothing, this investigator set out to try to find out something that might be labeled at least a small advancement in the handling of the menstrual blood.

Electronic pH Recordings of the Vagina, the Internal Tampon, and the External Pads During the Menstrual Flow

In previous studies, this investigator has reported his research on the pH, glycogen content of the vaginal epithelial walls, the bacterial flora of the vaginal secretion, and the vaginal wall.

The normal vaginal pH was first recorded by doing pHs on virgins of all ages while they were in the charity hospital for non-gynecologic surgery. Also, with the advent of the very thin, long vaginal pH electrode, this writer can now easily determine the vaginal pH in virgins in the office. The normal vaginal pH was found to be between pH 3.5 to 4.2. In some cases, vaginal pH has been recorded as low as pH 3.0.

The vaginal walls' pHs were also recorded just before, during and right after the menstrual flow. It was found that the pH changed, radically, to pH 7.2 to 8.0, which means that the vagina

becomes 10,000 times *less acid* during the menstrual flow than the non-menstrual vagina. The problem here was, how one might lower this highly alkaline vaginal pH back to its normal pH or even below normal pH during the menstrual flow.

*The New Low pH Powder and Tablets**

In the Obstetrical and Gynecological Research Institute it has been discovered that by adding vaginal adhesives to five or more non-toxic acids, the resulting pH will be 1.0 to 2.8 to 2.2. At this low pH, menstrual blood is changed into a fine, dry, non-sticky, inert, non-toxic sterile powder which is apparently metabolized in the vagina by the enzymes into harmless chemicals which are reabsorbed into the general circulation. The acid hemoglobin salts are reabsorbed into the body and the iron is possibly utilized by the reticulo-endothelial system to produce more hemoglobin in the formation of more red blood cells.

The above assumption is based on the fact that the powder which is instilled into the vagina and mixed with the menstrual blood does not all seep out of the vagina, but appears to be absorbed from the vagina through the vaginal walls, into the general circulation. The adhesives prevent the leakage or loss of the new low pH powder from the vaginal canal.

On over 200 blood agar culture plates it has been found that at such a low pH there was no bacterial growth, nor did the odiferous menstrual blood within the vagina deteriorate.

The vaginal walls containing enzymes and vitamins which metabolize the menstrual blood, being a very absorptive organ at low acid pH, absorbs some of the changed menstrual blood back into the general circulation.

Method of Eliminating the Menstrual Blood

With the New Low pH Powder and Tablets

Women who could tell fairly accurately when their menstruation was to begin were told to fill the Dr. Barnes-Mueller or the Comatic vaginal applicator full of the powder, and then insert the glass plunger or the plastic plunger all the way back in the vagina as far as it will go and then push the plunger so that all the powder is deposited deep in the vagina around the cervix. The first applicator-full will cover all of the cervix. Then another and another applicator-full is instilled into the vagina until the vaginal canal is completely filled. Then one to three new low pH tablets* are inserted into the powder within the vagina.

No vaginal packs or introital pads are necessary, since the presence in the powder of new vaginal adhesives holds the medication within the vagina, thereby keeping the powder from leaking from the vagina.

Those women who can not tell when they are going to menstruate, were told to fill the vagina full of the powder and tablets after the menstrual blood is felt on the perineum, or running down the legs or moistness detected on their underclothing. The same method as given above for instilling the powder and tablets is used. These women can keep a daily basal temperature chart and a written record of the menstrual days each month. From this chart, the patient should be able to tell when next she is going to menstruate. If she can tell within one or two days before menstruation, she then can fill her vagina with this powder and tablets before the flow starts.

If the menstrual cycle has already started, and the menses are flowing freely, the patient is instructed to take a warm water douche (never a cold douche), in a supine position in the bathtub. The perineum is then dried with a towel, and then, with a finger protected by the towel, she is told to dry as far up in the vagina as she can reach. Then the powder and tablets are placed as given above.

A small amount of lubricant is placed around the tip of the Barnes-Mueller or Comatic vaginal applicator before it is inserted into the vagina. The lubricant makes the insertion of the applicator easier.

Daily one to three applicators-full of the powder is inserted deep in the vagina. Each woman will have to discover for herself the amount of powder necessary to keep the menstrual blood changed into a dry, fine powder. It has been found that one tablespoonful of the powder will change 10 teaspoonsful of menstrual blood into a fine, dry powder.

If the woman must still wear an external pad, she is instructed to open it and place an excessive amount of the powder between *each layer* and then fold it back in place and wear in position over the perineum. Then the napkin is pushed away from the perineum and the area between the opened labia is filled with the new low pH powder and then the pad is placed in the normal position. This method is used so that any menstrual blood that escapes to the vaginal opening first meets the new low pH powder and is changed into a dry, fine powder before it reaches the pad so it

*Trimagill. S. E. Massengill & Co., Bristol, Tennessee.

may destroy any micro-organisms that are present within the menstrual blood. This way the pad is seldom contaminated and therefore seldom needs to be changed. All odors and gases are eliminated by this powder.

If any menstrual blood ever reaches the skin of the perineum, it is no longer washed off with a wet towel or rag, but an excessive amount of the powder is blown over and rubbed into the blood. This blood is changed into a fine, dry powder which is no longer blood and no longer sticky, but can be easily dusted off the skin into the commode or onto the floor.

Case Reports

For the past two years this investigator has been instructing his private patients how to use this new method for menstrual hygiene. Over 200 patients are now using this powder and tablets for their menstrual flow.

Women who can use internal tampons during the menstrual flow can use this powder and tablets with even more ease and beneficial results. This powder and tablets should replace the internal tampon entirely. Many women who do not flow too profusely and can not use the internal tampon, can use the powder and tablets instead of the external pad.

Those who menstruate profusely can use the powder and tablets in the vagina, and between each layer of the napkin and on and over the labia. In these women, powder is also used between the napkin in place and the area between the opened labia. In those women who menstruate profusely, more and more powder will have to be placed between the napkin in place and the labia so that as the blood comes from the vagina, it meets the powder and is changed into a fine, dry salt. If the woman uses enough powder, then the menstrual blood never reaches the napkin so the napkin does not have to be changed so often. This powder eliminates all perineal odors and all menstrual odors.

The physician may fill the vagina just before each menstrual flow or the patient may use the diaphragm method, whereby a well-fitted diaphragm is inserted just before menstruation and this diaphragm filled with four to six applicators full of low pH powder and four to six low pH tablets. As menstrual blood comes in contact with low pH medication it is changed into a very small amount of fine dry powder. Patient changes diaphragm as often as needed.

Conclusion and Discussion

There is a real need for an improvement of

the older methods used to eliminate the waste products of menstruation. The external pad and the internal tampon fail to absorb the blood efficiently as it comes from the cervical canal into the vagina. Even if the internal tampon meets the blood at the cervical canal, it fails to change the blood or to prevent the blood from undergoing putrefaction with resultant odor. Both the external pad and the internal tampon allow the blood to purify, resulting in a higher alkalinity of the vagina. This method also does not inhibit the growth of non-pathogenic and pathogenic vaginal micro-organisms, but favors their growth, a fact which can be shown by the pH of 7.1 to 7.3 of the menstrual blood as it comes out of the cervical canal. After this blood has been in the vagina and in and on the tampon, the pH is 7.6 or even as high as pH 8.5. This indicates that the blood has undergone marked deteriorating changes.

The new female hygiene method not only keeps the vaginal pH normal, it also changes the menstrual blood into other chemicals which are partially re-absorbed back into the system, and may be utilized again in the making of new, red blood cells; it also makes the menstrual blood sterile at a pH of 2.0 to 2.5. At this pH there is no burning or irritation.

In this new method of female hygiene, vaginal adhesives cause the powder and tablets to adhere to the vaginal walls and thus eliminates the leakage of the powder and tablets from the vagina. These adhesives also eliminate vaginal and introital packs and perineal pads.

It is about time that something better is brought out for female personal hygiene during the menstrual flow.

Such a new and improved method is presented here.

There are now three ways in which a woman can dispose of her menstrual flow, external pad, internal tampon, and by using the new, low pH powder.

Note: (1) Comatic Laboratory, 2819 Portsmouth, Houston, Tex., makes a plastic vaginal powder applicator. This applicator is very reasonable in price and will not break.

(2) Barnes-Mueller glass vaginal powder applicator is made by Scientific Glass Blowing Co., 5510 Lawndale, Houston, Tex.

Some patients prefer glass and some prefer the plastic vaginal applicator. The patient picks the one she wishes.

PRINCIPLES IN THE SURGICAL MANAGEMENT OF MASS CASUALTIES

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MANKIND has always been plagued by natural disasters which have produced large numbers of injured and dead. To these have been added the casualty-producing capabilities of the atom bomb and the thermonuclear weapon, so that now we may be faced with a problem which for sheer magnitude is totally new in the annals of mankind. For the first time a country at war may visit upon its enemies thousands or millions of simultaneously generated casualties, thus creating a great disparity between numbers of wounded and numbers of professional personnel available for providing treatment. The destruction produced by the mononuclear weapons will probably disrupt lines of communication, transportation, and electrical power for days, and perhaps weeks, and will compound the disproportion between numbers of casualties and medical capabilities. This will render more difficult the mobilization of medical personnel. In addition, in the event of a thermonuclear attack, it is felt that not one or two strategic targets will be chosen for destruction but that, instead, many throughout the country will be struck simultaneously. Such a situation will make it necessary that each industrial complex handle its own wounded and dead with facilities and personnel available in the immediate area. In the event of a ground burst, persistent radioactivity in the area of destruction may complicate and render hazardous all attempts at rescue or first aid. If we add to all of the above the fact that necessarily there will be a shortage of hospital beds and stockpiles of supplies, we have presented a problem which can be staggering in its magnitude to the uninitiated.

The Problem

The medical management of large numbers of sick or injured, whether they result from epidemic disease, combat, or disaster, involves the establishment of an organization that takes into consideration every essential of proper care. This orderly process of medical management insures that wherever possible each patient will receive treatment in proportion to his degree of morbidity and disability and that under no circumstances will the lives of the many be jeopardized by the medical needs of the one or the few. To insure proper functioning, it is essential that this organization be established and tested prior to the disaster to determine its capability for carrying out its stated function when required to do so.

The initial management of the injured en masse is a surgical problem, which entails the sorting of casualties to determine priority for treatment, evacuation, and return to duty; it entails the emergency treatment of these wounded in order to save life and limb; it entails the surgical treatment of those injured requiring operation, and it entails the postoperative management of those casualties submitted to surgery. Necessarily, with large numbers of injured, each phase of care consumes a considerable period of time, so that, even with the best organization, a considerable time lag between wounding and treatment will ensue. This results in increased morbidity and mortality. To illustrate: An atom bomb dropped on city X, with a population of 30,000, results in 14,583 injured. A census of the area reveals 60 physicians (one per 500 population) who can be mobilized to care for these casualties. On the basis that one sorting team, consisting of about 30 people, can sort and initiate emergency medical treatment for 50 casualties per hour, sorting of these casual-

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ties would require 291 hours. If eight sorting teams were used, this could be reduced to 37 hours. Of these 14,583 injured, by eliminating from consideration those who require only domiciliary care and those with minor wounds who can be returned to duty after necessary first aid is accomplished, it is found after sorting that 6,450 require hospitalization and surgical treatment. Assuming that a surgical team can perform an average of 10.5 surgical procedures per 24 hours (this is higher than average for a combat zone), then to accomplish this surgery in 24 hours would require 614 surgeons and 614 anesthetists. With only 60 physicians of all types in the area, and assuming that 45 will perform surgery while 15 give anesthesia, it would take 13.6 days to operate upon all of the casualties requiring surgery. The time required to sort and operate upon 14,583 injured with the physicians available in the area is thus 15-plus days.

What is the added cost in mortality from this delay in surgery? In Korea, where almost all casualties could be operated upon within 24 hours of the time of wounding, the mortality rate was 2.4 per cent. This mortality percentage as applied to our 14,583 casualties would result in 349 deaths. If we assume that delay in treatment would produce as much as 17 per cent mortality, as in the Crimean war, where treatment was relatively noneffective in saving life, an additional 2,130, or a total of 2,479, casualties would die.

It becomes obvious from the problem outlined above that no easy solution is possible. A good deal of prior planning and preset organization, geared and trained in what we consider to be the essentials of proper management of masses of injured, is an essential. How shall we plan and train such an organization? Is there anything in our country's past experience which can serve as a base on which such organization can be built? To build, to plan, to train in this fashion requires that wherever possible, theory and theoretical thinking be subordinated to solid, indisputable fact. Just such a body of fact and evidence based on the experiences of the military medical services in past wars is available for military, as well as civilian, use. True, the problem is not quite the same, since we have never before experienced either great masses of simultaneously generated casualties, or a large disproportion between numbers of casualties and the number of physicians available

for treatment. However, an organization which can and has handled as many as several thousand casualties per day so efficiently as to reduce the mortality rate among the wounded in action to the 4.5 per cent of World War II and the 2.4 per cent of the Korean conflict deserves analysis.

A Solution

SORTING: Sorting is the procedure by means of which the sick and wounded are classified according to type and urgency of conditions presented so that they can be properly routed to medical installations appropriately situated and equipped for their care. It is a continuous procedure throughout the treatment chain and must be practiced in each installation by the most mature surgeon available. To achieve maximum effectiveness, sorting must be a flexible procedure, which not only takes into consideration the over-all disaster picture or tactical situation, but also considers changes in local medical capabilities which may alter the criteria for return to duty and the priorities for treatment and evacuation.

ESTABLISHMENT OF PRIORITIES: As mentioned above, sorting has as its objective the organization of large numbers of casualties so that priorities for treatment, evacuation, and return to duty may be more easily established. This system was evolved by experience through several wars. At the present time we pride ourselves on the fact that by its means no casualty is ever denied treatment, that treatment is usually commensurate with severity of injury and quality and number of facilities and personnel available, that time lag between wounding and the institution of therapy is reduced to a minimum, and that, because of its efficiency, we can accomplish the greatest good for the largest number. In past wars, as well as in most disasters, the concept of the establishment of priorities was based on an unfailing source of supplies for treatment, and little or no disproportion between numbers of casualties and quantity of medical personnel available for treatment. In practice, this has resulted in priorities for treatment usually being established on the basis of wound severity, so that the most severely wounded enjoys the highest, and the least severely wounded the lowest priority. Prior planning for the care of mass casualties due to atomic disasters makes it evident that some modification of our priority system must be established in order to avoid disservice to the

many in favor of the few because of limited treatment facilities, inadequate supplies, and lack of medical personnel. Such a modification provides for all injured to be divided into four groups:

1. Casualties requiring minimal treatment:

- (a) Those who may be returned to duty.
 - (1) Small lacerations or contusions.
 - (2) Simple fractures of small bones.
 - (3) Second-degree burns of less than 10 per cent extent, but not involving face or hands.
 - (4) Acute whole-body ionizing radiation dosage of 100-150 *rem* (Roentgen equivalent, mammal).
- (b) Noneffective persons who require domiciliary care:
 - (1) Disabling minor fractures.
 - (2) Burns of face or hands which interfere with the person's ability to care for himself.
 - (3) Moderate neuropsychiatric disorders.
 - (4) Acute whole-body ionizing radiation dosage of 150 or less *rem* in the presence of early symptoms.

These casualties truly have no priority for treatment, but in practice will receive their treatment early. Ordinarily, their wounds are of such a nature that the treatment they receive while being sorted is all the therapy that they require, and they can then be returned to duty or remanded to domiciliary care.

2. Casualties requiring immediate care:

- (a) Those with hemorrhage from an easily accessible site.
- (b) Those with rapidly correctible mechanical respiratory defects.
- (c) Those with severe crushing wounds of extremities.
- (d) Those with incomplete amputations.
- (e) Those with severe lacerations involving open fractures of major bones.
- (f) Those with severe burns of the face and upper respiratory tract necessitating tracheotomy.

The casualties in Group 2 will enjoy the highest priority for surgical treatment because a relatively short procedure will suffice to save life. More definitive surgery can then be delayed to a later date, accepting infection as the price of this delay.

3. Casualties whose surgical treatment may be delayed without immediate jeopardy to life:

- (a) Those with simple fractures of major bones.
- (b) Those with moderate lacerations without extensive bleeding.
- (c) Those with second-degree burns of 10 per cent to 40 per cent and third-degree burns of 10 per cent to 30 per cent (after body fluids have been stabilized.)
- (d) Those with noncritical central nervous system injuries.

This group is composed of casualties, a delay in whose treatment will probably lead to infection, but whose lives will not otherwise be jeopardized by delay. The amount of delay between wounding and surgery for this group depends on the total number of casualties with higher priorities who need treatment and the number of professional personnel available to institute surgical treatment.

4. Casualties whose therapy will be expectant:

- (a) Those with critical injuries of the central nervous system or respiratory system.
- (b) Those with multiple severe injuries critical in nature.
- (c) Those with penetrating or perforating abdominal wounds.
- (d) Those with severe burns of large areas (40 per cent or above).
- (e) Those with established lethal or supra-lethal doses of total body radiation.

The expectant treatment for Group 4 casualties will not be one of masterful neglect but will, instead, consist of that resuscitation and emergency medical treatment which the available facilities, total supplies, and number of professional personnel permit. Theirs will, however, be the lowest priority for surgery because the operative procedures required are lengthy and technically complicated, so that an operative procedure on one of these casualties would theoretically jeopardize the lives of several casualties in other priority groups. Increased loss of life in this group is accepted as a necessary consequence of this low priority for surgery.

TREATMENT CONSIDERATIONS: Any early treatment given to the victims of disaster should be directed toward saving life and limb. Additionally, every effort must be made to insure that physical deterioration is arrested or prevented in the interval between the institution of emergency medical treatment and definitive surgery. As is true during conventional warfare and natural disasters, the extent of treatment given

early after nuclear bombardment will depend upon the number and types of injured and medical capabilities in regard to personnel, supplies, and equipment. Where these capabilities are limited, only emergency medical care may be possible, so that definitive care may have to be delayed. Because of the magnitude of the casualty load, any medical installation located beyond the perimeter of destruction, but close to the site of disaster, may have to provide emergency medical treatment for a period of days, even though this is thought of as primarily a function of aid stations. The provision of this type of care may thus preclude, or at least limit, the amount of definitive treatment which can be provided early. With the congregation of huge masses of casualties in a disaster zone, or when medical installations have been wiped out by the detonation, emergency treatment facilities will have to be established proximate to the site. These can provide lifesaving treatment of maximal effectiveness because the physical deterioration incident to the rigors of travel in untreated casualties will thus be avoided. As in conventional warfare, the danger to medical personnel inherent in close-in medical support will have to be weighed against the lifesaving potentialities of these installations.

FIRST AID AND RESCUE: During past wars, first aid and rescue have been functions of the medical service, carried out by enlisted men trained to perform these procedures. In past, relatively limited disasters, they have been performed by well-trained police, firemen, and Red Cross workers, assisted by willing but untrained volunteers. Because of the huge number of injured anticipated in the event of thermonuclear disaster, it will become necessary for these functions to be assumed mostly by volunteers. If they are to function with maximal efficiency and produce minimal mortality, they will have to be trained. Their use will avoid further dissipating already overtaxed medical capabilities by permitting all medical and auxiliary medical personnel to concentrate on the performance of emergency medical procedures. With adequate training in first aid, self-aid, and buddy aid, physical deterioration and death can be held to a minimum until medical help can be obtained. These first-aid measures will consist essentially of bandaging and splinting of those minimally wounded, who can then be returned to duty so that they may aid either in fighting

an enemy, or in the care of more seriously injured. Directed toward the severely wounded, these measures may consist not only of bandaging and splinting, but also of control of hemorrhage, correction of certain respiratory defects, and alleviation of pain. In this group, physical deterioration will thus be prevented in a considerable percentage of casualties until they can be evacuated to where medical help is available. Obviously, the number of tactical military personnel permitted to devote their time to this function will depend on the military situation and on the commander's need and ability to carry out tactical activity. On the other hand, any tactical organization which neglects this training in first aid for non-medical soldiers may condemn itself to failure, for, with present-day potentialities for the mass production of casualties, this ability of an organization to bind its own wounds may be the factor which can mean the difference between victory and defeat.

EMERGENCY MEDICAL TREATMENT: Emergency medical treatment is concerned with the performance by medical personnel of those procedures which save life and limb or prevent clinical deterioration of the injured. These procedures are directed toward the resuscitation of the casualty whose wound severity is such that active effort is required to ameliorate or stop the specific dynamic action of the injury. They will consist of the treatment of shock and the performance of certain essential surgical procedures. The treatment of shock among the wounded consists mainly of fluid replacement. When available, whole-blood and plasma expanders, such as plasma, serum albumin, and Dextran, should be used when indicated. The use of large amounts of expanders per casualty is not without danger. None of them provides any oxygen-carrying capacity, so that transfusions of more than 1,500-2,000 cc., may be deleterious to the recovery of the patient. Pool plasma, when used in Korea, was responsible for serum hepatitis in 20 per cent to 25 per cent of all recipients. Dextran causes a bleeding tendency in a significant number of wounded. During the emergency period of mass-casualty management, the available blood and plasma-volume expanders must be reserved for those patients in the immediate and delayed treatment groups who may benefit most from the available fluids. The highest priority for fluid replacement should be reserved for those casualties in whom bleed-

ing is controlled, for this provides the most profitable utilization of these substances and conserves the available fluids.

In all probability, intravenous fluids and equipment will not be readily available. Water by mouth or water reinforced with electrolytes (salt and soda) may be the only supporting fluids available. Hypodermoclysis and proctoclysis, which are simple in application, safe, and relatively effective, may have to be used in lieu of intravenous therapy. Whenever possible, those injured with burns of less than 20 per cent extent should receive oral fluids. Those persons with burns of 20 per cent to 40 per cent extent should receive a high priority for parenteral fluids, provided they cannot tolerate oral fluids.

Essential surgical procedures are those which are lifesaving if performed early, and, as such, may consist of tracheotomies for respiratory obstruction, the application of occlusive dressings for sucking chest wounds, thoracenteses for the thoracic-wounded with respiratory distress, the relief of tension pneumothorax by means of an intercostal needle and flutter valve, the completion of partial amputations, the splinting of major fractures, and the reinforcement of dressings where indicated. Whenever possible, vascular injuries of the extremities should be treated with pressure dressings. Tourniquets should be used only as a last resort, for in a mass-casualty situation, their use accepts probable amputation.

DEFINITIVE TREATMENT: *Definitive* medical care is concerned with the institution of indicated specific surgical procedures in keeping with the priority of treatment established. Because of the large numbers of casualties and the relatively limited medical capabilities, certain short cuts and compromises in therapy may have to be established. It must be understood and accepted in advance that these may produce an increase in morbidity, but little, if any, increase in mortality. They are desirable only insofar as they permit the definitive care of more casualties per unit of time. Among these may be the necessity for ligation of major vessels rather than their definitive suture repair. Implicit in this decision is the knowledge that with its application we can prognosticate an amputation rate of 49 per cent, as in World War II, rather than the 17 per cent which resulted after the suture repairs of the Korean conflict. Splints may have to serve for definitive alignment of closed fractures, with full anticipation of an increase in

malunions and nonunions, which will cause an increase in morbidity. This can be corrected at a later date when time permits. The tacking of facial wounds through easily identified structures may be a substitute for early coaptation of wound edges, provided we appreciate the additional care imposed by oral fistulae resulting from this type of surgical technique. At the earliest possible time, cosmetic repair will have to be definitely accomplished.

Because more than 50 per cent of all missile trauma is anticipated to involve the extremities, and because lack of proper surgical care is likely to lead to gas gangrene and other life- and limb-jeopardizing infections in a large percentage of cases, it is felt that debridement of extremity wounds is likely to comprise a large part of specific treatment. The cardinal principles of this therapy are as follows:

1. Incisions should be made in the long axis of the extremity except where wounds are over a flexion crease.
2. The skin incision should be long enough to permit adequate exposure of the underlying devitalized tissue.
3. Only a minimal amount of skin should be excised.
4. The fascia must be opened to the full extent of the skin incision.
5. Excision of devitalized muscle is contingent upon (a) lack of contractility; (b) color change; (c) lack of bleeding, and (d) change in consistency.
6. Hemostasis should be complete.
7. All debris in the wound depth should be flushed out with saline.
8. Wounds should not be sutured primarily. Instead, where possible, delayed primary closure in four to six days should be practiced. (Associated burns and radiation injuries may complicate or delay attempts at closure.)
9. Dressings should be applied firmly but not packed into the wounds.
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Antibiotics, Thoracic Wounds, and Burns

Proper application of these principles within 24 hours of wounding should serve to minimize infection and morbidity. With delay, the incidence of gas gangrene, tetanus, and other infections will rise. Antibiotics, if available, should

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Antibiotics, Thoracic Wounds, and Burns

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be given early to most injured. Under no circumstances can they be considered as a substitute for surgical treatment. They should serve, instead, as a means of delaying the invasive stage of wound infection and thus render less dangerous to the casualty the expected delay in treatment. Only one, or at most two, potent broad-spectrum antibiotics should be used for this purpose, and their use should be continued for at least five days. The patient's clinical condition and availability of supplies will determine the agent employed, the route of administration, and the dosage and duration of treatment. Regardless of the antibiotic employed, resistant bacterial strains will develop. This will necessitate the utilization of additional antibiotics at a later date. In spite of delay in debridement, toxoid should serve to minimize the incidence of tetanus for those casualties previously actively immunized. A single stimulating dose will suffice. For those casualties not actively immunized, tetanus antitoxin will be required.

Without exploration, the extent and seriousness of injuries to the abdomen, thorax, and central nervous system are difficult to determine because simple wounds of entrance frequently lead to extensive damage, requiring skill and time to repair. As was demonstrated in Korea, in 90 per cent of the cases thoracic wounds responded well to thoracentesis. Those casualties with perforations of the mediastinum, those with rapid accumulation of hemothorax or pneumothorax after aspiration, and those with cardiac tamponade not responsive to paracentesis are in need of extensive thoracic surgery. Craniotomy, laminectomy, thoracotomy, laparotomy are time-consuming. With huge numbers of casualties, these may have to be deferred initially, so that primary attention may be directed to the many casualties with a reasonable chance for survival. When available, however, treatment modalities, such as blood transfusion, intubation, antibiotics, and Wangensteen suction, should not be denied to these severely wounded.

In a disaster, the number of casualties with burns and their severity will vary with circumstances. In a thermonuclear disaster, a significant number of all living injured may be burned. These injuries may vary in severity from flash burns of exposed body surfaces to almost total-body burns. This severity will depend upon the size of the weapon used, the position of the patient in relation to ground zero, and the com-

bustibility of the environment. With huge numbers of burn casualties, dressings will be in short supply, so that the open-air treatment of most burns must prevail. Those casualties with burns of less than 10 per cent extent who can return to duty may have dressings applied, for this would enable them to be gainfully employed. The local application of a bland ointment may be effective in alleviating pain. Since burns almost inevitably become infected, the use of a broad-spectrum antibiotic should be anticipated. Available fluids should be given freely and, where possible, exclusively by mouth, in the form of Moyer's solution (3-4 gm. NaCl and 1.5-2 gm. NaHCO_3 per liter). This therapy should conform with any acceptable formula based on the percentage of total body surface burned. The rate of administration is regulated by urinary output, which should be maintained at 30 to 60 cc. per hour. Initially, the local treatment of the burned area should consist of gentle cleansing and trimming of loose-hanging skin tags. Avoidance of hard scrubbing and debridement of adherent skin may avert the danger of precipitating shock.

Radiation, Anesthetics, and Analgesics

Because of the difficulties inherent in determining the amount of total-body radiation received, the medical care of these casualties may depend upon symptomatology and clinical findings. Here it is important to remember that the shorter the time interval between exposure and the onset of symptoms, the graver is the prognosis. Lacking specific curative or preventive therapy, this type of injury presents no medical emergency. It may even be necessary to use the less incapacitated of these casualties to help in the care of the other, more severely injured. When indicated, the active treatment of these casualties is directed toward restoring to normal the fluid and electrolyte balance disturbed by the resultant vomiting and diarrhea. Adequate nutrition and rest, the restoration of a hemoglobin level of 10 gm. per 100 cc., and the control of infection with antibiotics are all considerations in this symptomatic treatment. Because radiation produces a decrease in formed blood elements by its action on the hematopoietic system, wound healing may be markedly altered. This may be coupled with fluid and electrolyte imbalance incident to gastrointestinal damage by exposure to radiation. These factors may dictate changes in the pre- and post-opera-

tive management of burned and mechanically wounded casualties with superimposed radiation injuries.

Anesthetics and analgesics play a vital role in the management of mass casualties. The anesthetic employed will depend on the availability of agents and of personnel qualified in its use. The anticipated shortage of anesthetists will probably result in one qualified person caring for more than one patient at a time. Where indicated, it may be necessary for one anesthesiologist to supervise three or four technicians giving anesthesia simultaneously. In such a situation, and with the absence of needed equipment, only open-drop ether and chloroform anesthesia may be used. Local and regional anesthesia may be prevalent. In such a situation, it is not wise to consider utilizing spinal anesthesia, because of its capacity for producing shock in already severely traumatized casualties. Thiopental (Pentothal) sodium is an excellent agent for the production of anesthesia when the operative procedure to be performed is short and the casualty is not likely to go into shock.

The cardinal principle in the use of analgesics is to use the smallest dose of the mildest agent needed to relieve pain. If possible, oral rather than parenteral agents should be employed, so as to conserve on the need for needles and syringes. Where opiates and other more powerful analgesics are required, the intravenous route is preferable to the intramuscular one, especially for casualties in shock. When the analgesic is administered, the time and size of the dose should be indicated either on the casualty tag

or with skin pencil on the casualty himself. Adherence to these principles will serve to reduce the incidence of morphinism.

SUMMARY

1. Thermonuclear warfare has the capability of producing hundreds of thousands or millions of casualties simultaneously.
2. These casualties will consist of (a) those resulting from blast; (b) those resulting from burns; (c) those resulting from nuclear radiation, and (d) those resulting from a combination of any or all of the above.
3. There will be a huge disparity between numbers of casualties and medical capabilities.
4. Care of mass casualties should be based on the proposition that we must do the greatest good for the largest number at the right time and in the right place.
5. Sorting is the key to the management of large numbers of casualties, for it is directed toward establishing criteria for return to duty, for priority for treatment, and for priority for evacuation.
6. The treatment categories in a mass casualty situation will be: (a) minimal treatment; (b) immediate treatment; (c) delayed treatment, and (d) expectant treatment.
7. The treatment of casualties may be divided into (a) first aid and rescue; (b) emergency medical treatment, and (c) definitive surgical treatment.
8. All treatment will be modified by short cuts and compromises to permit caring for a large number of casualties per unit of time.

(Continued from Page 604)

Back in 1859, when your organization was founded, our hospitals were, all too frequently, places that individuals did their best to avoid — for their chances of coming out alive were not encouraging. As for the unfortunates with contagious illnesses, they were merely sent into isolation so that they would not endanger the lives of other citizens.

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bring to all our people healing and disease prevention practices through your co-operation with many organizations — including hospitals and universities, voluntary health groups, industry and government.

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(Continued on Page 622)

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1. Innerfield, I.: Clinical report cited with permission
2. Clinical report cited with permission



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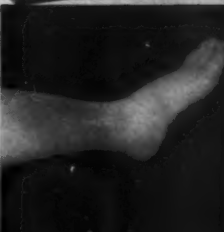
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of **VARIDASE¹**



Current Trends in Medical Education **THE ESTABLISHMENT OF A MEDICAL SCHOOL***

Vernon W. Lippard, M.D.

*Dean of the medical facility of Yale University
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IT WAS good of you to take a Connecticut Yankee into your council. I promise not to sell you any wooden nutmegs. My only concern is that our country face squarely the reality that our population is increasing at an amazing rate and that we not be caught short in the provision of essential services. Many such services are outside the realm of our interests but there is one which is our immediate concern and responsibility, i.e., the production of competent physicians in numbers sufficient to meet the demands for medical care and to advance medical science through research.

Suddenly confronted with this problem, several estimates of physician requirements have been projected over the past two years. They have taken into consideration such factors as improvement in transportation and communication, control of infectious diseases by sanitation and immunization and diminution of their severity and duration by use of antibiotics, which would suggest that a smaller ratio of physicians to population may be necessary. Balanced against these factors are the aging of the population and our capacity to treat diseases formerly considered hopeless which tend to increase the demand for physicians' services. In the maze of this controversy, one fact stands out clearly — these trends did not begin yesterday but have been continuous over the past 50 years; yet over that entire period, the ratio of physicians to population has remained almost constant at a level of about 132 per 100,000. There is no reason to believe that good medical service can be provided with fewer.

In order to maintain this ratio, which experience has proved to be necessary, the production of physicians must be accelerated over the next few years. Only a little over a year ago, it was predicted that the population of the United States would reach 220 million by 1975. A few months ago, a commission appointed by the surgeon general of the USPHS was assembled to explore this problem of physician

supply and come forward with a definitive plan for its solution, and it was instructed by the census bureau that 16 years from now the population is more likely to reach 235 million. Taking figures as a base, the number of students graduated in 1975 will have to be about 10,500, over 3,000 more than at present, if the existing physician-population ratio is to be maintained. Some of this increase will be taken care of by expansion of existing schools. Other factors may shift the demand a few hundred one way or the other, but the fact remains that several new schools will be needed.

Planning for the Future

In planning for the future, demographic factors other than mere numbers must be considered. One of these factors is population mobility. Each year, one out of every five families in the United States moves from one community to another, and the predicted movement is toward the West and Southwest. The supply of physicians is a national problem and, economic conditions being favorable, doctors like other people, tend to distribute themselves into areas where they are needed. Nevertheless, there are obvious advantages in having the distribution of medical schools in some general relation to the distribution of population. Thus, if favorable conditions can be created, the establishment of a medical school in this area would appear to be in order. My assignment today is to suggest how you might go about it.

In earlier days, the problem was a simple one. Medical instruction at the University of Virginia was inaugurated in 1825 by the establishment of a chair in anatomy and medicine. At Yale, 150 years ago, one professor was imported and he joined with a chemist and a group of local physicians to form a faculty, and two years after the charter had been granted, instruction was under way. Now the problem is quite different yet the fallacy persists that if a town has 300 or 400 hospital beds scattered around among several independent hospitals and a group of local physicians with no teaching or research experience who think they would like to be pro-

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fessors, the founding of a medical school would be a simple and inexpensive process. If I can make one contribution to your deliberations here today, it would be to dissuade you from planning on such an irrational basis.

Location

The single factor that I would consider to be of paramount importance in the establishment of a medical school is intimate association with and control by a well established university which has other graduate and professional schools and a reputation of maintaining high educational standards. When such a university is privately endowed, the question of location is seldom a problem. When the university is tax-supported, as most of those establishing medical schools in the future will probably be, location almost invariably becomes a political football and local jealousies, prejudices and selfish interests may play a larger role than educational considerations.

In the rational determination of a location, factors of primary concern should include association with the parent university and availability of clinical material. Other factors being equal, physical proximity and opportunity for close intellectual association with other university disciplines are of major importance. Although some medical schools have survived and will continue to operate independently or in distant relationship to other divisions of their parent universities, I predict that they will be increasingly handicapped over the next century, as medical science becomes more and more closely related to the natural and social sciences. In some states, location of the state university in a rural area, far removed from any density of population, will make location of the medical school on the campus impractical, and another solution may have to be found.

The significance of availability of patients is inescapable and in this regard it is most important to consider future potential as well as existing circumstances. The potential growth of the community which a university hospital may be expected to serve as well as the number of people in it at present is of great importance.

As I mentioned earlier, the existence of scattered small, independent hospitals in a community is of no significance. Rarely, there may be a large city, county or voluntary hospital which can be turned over to the university, but this can seldom be accomplished without con-

siderable trauma, and half-way measures only lead to complications. Unless the university can be given complete responsibility for appointment of staff and a good deal of say about its operation, the affiliation is not likely to be satisfactory.

Busy Years

Location of the medical school having been decided upon, and funds for purchase of land and planning appropriated, a minimum of eight years will have passed before the first student is graduated. At least four of these years will have been spent in planning and construction before the first student can be enrolled. A number of people are going to find these the four busiest years of their lives. Essential to this operation from the very beginning is a competent dean. He will gather around him a small group of people, including a hospital administrator, and will be responsible for working with the university administration and architects in planning the program and facilities. If the school is to be under state auspices, he will have to give a lot of time and thought to the social and economic characteristics and health needs of the community which the school will serve.

With construction of the building for instruction and research in the basic medical sciences under way, his attention will be turned to design of the hospital because that should be in operation by the time the first entering class reaches its second year. Plans for an ordinary hospital will not do because integration of clinical services, both inpatient and outpatient, with facilities for instruction and research at both the clinical and preclinical levels is of great importance.

Faculty

Finally, he will get around to perhaps the toughest job of all, the selection of a faculty. For this task he will need a strong backbone as well as sympathetic understanding of the medical community. Members of the basic medical science departments will, of course, be appointed on a full-time salaried basis like the members of other departments throughout the university. A substantial nucleus of full-time salaried members of the clinical departments is equally essential. These will be more experienced in teaching and research as well as medical care and they will have to be recruited wherever they can be found. Inevitably they will compete with the local profession for prestige as well as patients. Unless the members of the local medical fraternity are

prepared to recognize this fact and adapt to it like mature and responsible citizens, the school might better be located elsewhere. Eventually a few of those who are competent, needed for instruction and willing to contribute their services regularly on a part-time, voluntary basis will be appointed to the clinical faculty. However, if the school is well organized, there will not be many such appointments; they will be made on an annual basis and none of them will be honorary. We must recognize the fact that medical schools are educational institutions, not clubs operated for the benefit of their members.

Costs

No state or institution should consider the establishment of a medical school without full realization of the costs of construction and operation. Good planning and a substantial initial investment pay off. The remodeling of an existing hospital and addition of a basic science building is seldom a good long-term investment.

Construction of a building to house the basic science departments, library and administration offices will cost \$6 to \$8 million. Assuming that the school under consideration is at the beginning to have slightly less than average enrollment, say 80 students per class, it should have at least 400 teaching beds occupied by ward patients or patients of its full-time faculty completely available to the clinical clerks. The cost of such a hospital, including outpatient facilities, will be in the neighborhood of \$10 to \$12 million. An additional allowance of \$1 to \$2 million have to be provided for offices and research laboratories of the clinical departments. This all adds up to about \$20 million.

These are necessarily rough estimates. They must vary with building costs in various parts of the country, the necessity for air-conditioning and many other factors. The plants of many of the older medical schools, which have expanded over the years and have larger enrollments and extensive research facilities, could not be replaced for twice the amount I have mentioned.

I trust that these estimates of capital expenses will not appear too staggering to the citizens of a state such as Arizona which, due to its limited population, has less extensive financial resources than larger states. All of the schools established in recent years have received aid from the federal government. Matching funds are now available under the health research facilities construction program for building and equipping

the areas which will be devoted to research. Hill-Burton appropriations may be applied to construction of a hospital. It is entirely conceivable that within the next year or two, as the urgent need for establishment of more medical schools becomes generally apparent, matching funds for construction of teaching facilities may be appropriated. With intelligent regional planning, adjacent states, such as Arizona and New Mexico, might well consider combining their resources, perhaps with the provision that the state in which the school is not located would have the privilege of withdrawing at such time as it becomes ready to establish a school on its own.

A realistic appraisal of the costs of operation is as important as the estimate for construction. Basic budgets of the preclinical departments could not be less than \$500,000. The budgets of clinical departments are more difficult to estimate, as they are dependent upon the extent to which the hospital may participate in the salaries of such departments as radiology, physical medicine and anesthesiology. Furthermore, in one way or another, the full-time members of clinical departments usually contribute to the budgets for their own salaries by caring for limited numbers of referred private patients. To assume that they should do so to the extent of more than 50 per cent, however, is unrealistic and a smaller percentage is more desirable. Including provision for minor alterations of laboratories and replacement of some basic equipment, a maintenance budget of at least \$200,000 is inevitable. Administration and library will cost another \$100,000. This all adds up to a minimal budget for the medical school alone of not less than \$1 million. If other educational programs such as nursing are contemplated, the costs will be greater.

These estimates do not include the cost of research, except as it may be hidden in salaries and other general expenses. A fluid research fund to get new projects underway is a tremendous asset. In this day, however, most medical schools are dependent upon support from federal agencies such as the National Institutes of Health, the National Science Foundation and the Atomic Energy Commission and from voluntary health agencies and foundations for most of the direct costs of research. In some of the older and well established schools, the amount of money entering and leaving their coffers each



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year in support of research from outside sources exceeds their budgets for instruction and basic operation. As research activities increase, the basic budget must be increased proportionally because indirect costs are seldom covered by research grants.

Income from tuition may be expected to balance only a small fraction of expenses; in the average American school only about 13 per cent. The remainder must come from endowment income and gifts or, in the case of state-supported schools, from taxation. No state should consider the establishment of a medical school unless it is prepared to face this fact realistically. Good medical education is expensive and there is no place for medical schools of poor quality which will inevitably produce grade B physicians.

What I have said about operating costs up to this point has left out of consideration any subsidization of the cost of operation of a hospital. This is an unknown quantity and differs greatly with the local situation. One point in this regard, which I cannot emphasize too strongly, is that the expense of hospital operation should not be confused with education. A good university hospital is a tremendous asset to the health and welfare program of a state and the bookkeeping should take this fact into account. Patients occupying private accommodations should be expected to pay their own way, but admission cannot be confined to that group alone. Furthermore, outpatient services, essential

for instruction, are never self-supporting.

Where funds for hospital operation are appropriated directly to the medical school or incorporated in the general budget of the university, they are invariably confused, in the minds of the legislators and the public, with the costs of education and the entire university is likely to suffer. This confusion may be avoided if the care of the indigent and medically indigent is charged against health or welfare appropriations. In such cases, the university hospital bills the health or welfare department of the state for the differences between what indigent patients can afford to pay and real costs, and operates on a balanced budget.

In closing, let me emphasize that I would be selling you a wooden nutmeg if I should lead you to believe that for the amounts mentioned a medical school comparable in size and research activity to many of those which have been in operation for a century or even one or two opened within the past few years could be established and operated. I do believe, however, that the need for establishment of several medical schools, under the auspices of universities with sound educational policies, is urgent and that an investment in the neighborhood of \$20 million would be adequate to get the program under way. If, after careful study and good advice, you should decide that such a program is feasible in Arizona, it would be launched with the support and best wishes of all those concerned with the future of medical education.

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water supply systems and vastly extended education. Each of these factors underscores the intimate link between a productive and expanding economy, and high standards of medical and health care.

Like our bodies must be vigorous, so our economy.

In this sense, the relationships between the balanced diet and balanced budget are easily understood. Neither is an end in itself. There are some useless items of food all of us crave and do eat, no matter how unwisely, just as there are always products and services for which we thoughtlessly spend, often to our own detriment. But in each instance we must conduct ourselves with a wary eye on the consequences. Habitual violation of the requirements of a balanced diet can lead to ruined health; deliberately to unbal-

ance the federal budget in time of huge indebtedness and rapidly increasing prosperity can bring about an enfeebled economy. The choice, therefore, is ours, and we must act with clear mind and resolution in either case.

In the management of our governmental activity, one simple need is for judgment, frugality, and restraint.

The federal government can be, with some accuracy, likened to a bank which uses the money deposited by the American people to finance many businesses — some necessary, some not so necessary. In these businesses are involved, in one way or another, all the bank's depositors.

If a bank — in this case the government — should persistently use its funds foolishly, or too lavishly, because of a yielding by its directors to the demands of specially favored or powerful

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A DISCUSSION OF SOME FUNDAMENTALS IN MEDICAL EDUCATION*

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AS I UNDERSTAND it, two questions underlie the discussions in this symposium: 1. Should Arizona establish a medical school? 2. If so, what kind of medical school should be established? The discussion in this paper is directed primarily to the latter question.

The fundamentals of medical education probably remain largely the same from one era to another. Yet the pattern and content of medical instruction changes: As the preparation of the student differs from time to time and from one country to another; as the health and disease spectrum of a particular area of the world changes; and as special knowledge increases. Moreover, medical education does not exist in a vacuum, but is surrounded and impinged upon by evolutionary changes in society and by the growth of knowledge in general.

It must be recognized that the traditional four-year span of medical school is but one segment of a much longer process. Much of vital importance educationally goes before, much inevitably follows. The medical school years should be considered as the mid-piece of a much longer period. What are some of the basic considerations upon which the medical school curriculum should be constructed? Can we improve the transition periods into and out of this focal middle segment of medical education? Are there ways of better interdigitation of the three important phases in the total formal education of the physician? In discussing these questions, a basic assumption is that the medical school will be an integral part of a university in which graduate study has already been developed.

Education for Medical Practice

One of the first questions a medical school must answer is what kind of product it desires. Since the large majority of those receiving the M.D. degree practice medicine in the traditional sense, should there be any educational concessions to the individual who eventually elects not to practice, but to engage in one of the other manifold activities for which the M.D. degree might qualify him, such as teaching and re-

search, military medicine, or public health in one or another of its many forms. Clearly, society needs both kinds of physicians, and it would be unwise heavily to weight the academic scales against students with scientific or laboratory or administrative leanings, thereby over the long range forcing such individuals into non-medical educational channels.

But I shall go a step further and support the thesis that there is no fundamental conflict at the medical school level between an educational pattern directed to the needs of the future practitioner of medicine and one designed to produce teachers and investigators. Indeed, the distinction between medical schools with academic versus practice orientation are fast disappearing. The good practitioner of today has the same critical outlook as the experimental biologist, and this trend will be accentuated in the future. It is entirely feasible to design a curriculum with sufficient flexibility to permit development of medical students with varying backgrounds, aptitudes, and ultimate objectives.

The Role of Research in Medical Education

Intimately related to the foregoing problem is the question of the role of research in the education of a physician. Certainly the medical student must acquire a fund of information as he pursues his step-wise course to the M.D. degree; but in addition it is of the utmost importance that he should be able to use this knowledge in an orderly, logical and disciplined manner. The student who undertakes an investigative problem under the supervision of a member of the faculty is required to formulate a meaningful question; design a pattern for obtaining pertinent data with economy of time and effort and with due regard for feasible controls; make the necessary observations with the use of whatever technical skills that are indicated; and finally analyze the findings, formulate logical conclusions, and present them in literate English.

Precisely this type of approach, whether made consciously or subconsciously, is the one the good clinician uses in the study of a sick patient. Accurate observations and a disciplined mind

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are characteristics equally essential to the medical investigator and the medical practitioner.

Only by striving to make medicine a scholarly pursuit will this great profession continue to attract the ablest young men and women in competition with fields such as physics and engineering. Such scholarly orientation in no way conflicts with the service responsibilities of medicine, but complements them. The continuing self-education of physicians, in which the medical school can play a key role, will result in more able and more satisfied practitioners of medicine.

Consequently, at Johns Hopkins we have broken away from the lock-step pattern wherein each class marches day after day, month after month through its medical course, and have moved to a curriculum which not only encourages individualization of instruction, but provides the elective time to make this possible. In our revised curriculum, one quarter of each academic year is set aside for elective studies. For example, among a second year class of 75, no less than 60 have already undertaken some investigative problems which they began either last year or this. There are now in the medical school at least 10 students who have dropped out of the regular medical course to do one or more years of special work. Most of these young men and women will not follow an investigative career, but I venture to predict that to most this period will be recalled as a meaningful and rich educational experience.

The Basic Sciences and Medicine

Through the initial efforts of the Council on Medical Education of the American Medical Association which stimulated the epoch-making Flexner report(1), medical schools in the United States and Canada have undergone remarkable evolutionary development during the past half-century. One of the most notable achievements has been the rise in quality of the pre-clinical departments. In many medical schools today, members of the departments of anatomy, biochemistry, physiology, microbiology and pharmacology are working and teaching at a most fundamental level, with much of their work being in the fore-front of the scientific advances of human biology.

Concurrently in many of these same universi-

ties, strong departments of biology, chemistry, physics and mathematics have evolved, often on the same campus.

These developments raise two questions: First, have we now an opportunity, during the pre-medical and the pre-clinical years, better to interdigitate the teaching of the sciences basic to medicine? Such integration will not only effect a saving of time to the prospective physician, but may give him a sounder preparation for medical school. It is but a short step from the study of the embryology of the chick to that of the human being. Why separate the two by a span of two to four years? What useful purpose is served by separating comparative and human anatomy so widely in time and space? Do we need the geneticist and the radio-biologist in both the college and the medical school, and if so how do their roles differ in the two segments of the university? These and many similar questions merely emphasize the great community of interest that exists between departments of biology, chemistry and biophysics on the one hand, and the pre-clinical departments of medical schools on the other.

It will be well to consider, too, whether it is wise and economical to have large overlapping departments in the medical school and in another graduate school of the same university. With geographical proximity of the two faculties, could not better utilization of scientific manpower be made? These and similar questions merit consideration in long range planning.

The Liberal Arts and Medicine

In earlier generations, educated men and women were commonly brought up in the classical and humanistic tradition of general education. This is no longer true. Indeed, it is often difficult to characterize the kind of education our present-day medical students have had. Usually it is heavily weighted with science (although the term "science" is unlikely to include the kind of mathematical training that seems so necessary to the understanding of modern cellular biology.) But this is about the only common denominator. A few medical students will have had a good background in history and perhaps even classical literature. A few will be well acquainted with our rich heritage of English literature; but in the fierce competition for entrance to medical school, the student tends too early to concentrate in the

1. "Medical Education in the United States and Canada" by Abraham Flexner; Bull. No. 4, Carnegie Fdn. for the Advancement of Teaching, 1910.

sciences and hesitate to put his time and energy into rigorous courses in the humanities or the social sciences.

Moreover, once in medical school, the student is so preoccupied with human biology and the medical specialities that it is only with great difficulty that he maintains any interest in literature, or history, or philosophy that he might earlier have cultivated. Thus we have too many medical graduates who are ill-prepared to cope with the great philosophical, social and humanistic problems which eventually confront all physicians and scientists. In my opinion, the medical schools are largely responsible for this situation, and it is they that have an obligation to do something about it.

At Johns Hopkins we are placing greater emphasis on the history and philosophy of science and medicine, and our Department of the History of Medicine is serving not only as an important teaching unit, but as an effective link with the Faculty of Philosophy of the University. Moreover, the Medical Residence Hall which houses both medical students, house officers and some post-doctoral fellows serves as a cultural center where the sciences, the humanities and the social sciences meet, as for example, through informal talks and seminars by prominent individuals outside the field of medicine.

In the revised program of medical education⁽²⁾ at Johns Hopkins we have gone much further in a formal way in experimenting with real interdigitation of college and medical school education. From among students who have completed two years of college, we shall admit this coming fall about 25 for combined study under the Medical Faculty and the Faculty of Philosophy of the University. These carefully selected students will be residents in the medical school, but will pursue concurrently studies in the sciences and the liberal arts. Chemistry and mathematics will be taught in the medical school while physics and advanced courses in the humanities or social sciences will be taught by the Faculty of Philosophy. The following year they will join, without group distinction, an incoming class of about 50 college graduates and together form the traditional first year class in medicine. Students in the former category must qualify for the A.B. degree at the end of that

year before being allowed to proceed in medicine.

The Role of the Two-Year Medical School

The rapidly growing population of the United States has brought increasing pressure for the education of more physicians. Responding to this pressure, most two-year medical schools have been expanded to four-year schools. But the real bottleneck in medical education is in the pre-clinical years because of the lack of qualified teachers in the basic sciences.

Many medical schools in our large centers of population could, with comparative ease and at no great increased cost, accommodate substantially more students in the clinical years than they now do.

It is my opinion, therefore, that the first step in moving to graduate more physicians is to expand the facilities for pre-clinical teaching. As indicated above, there are many universities with science faculties which could readily form the nucleus of a two-year medical school. Here again, great opportunities would be available further to explore interdigitation of the last two years of college and the first two years of medical school.

The Clinical Clerkship

At the other end of the medical school spectrum, opportunities exist for better co-ordination of clinical teaching. There is admittedly much duplication in the practical clinical instruction given during the last year of medical school and that of the internship. The time has come, we believe, to give the last year medical student more responsibility in the care of patients under the immediate supervision of the assistant resident. Such a shift is not merely a matter of definition, (clinical clerk versus intern), but entails the assumption of real responsibility by the student. The result will be acceleration of the maturation process for the medical student and more rapid progress toward the completion of his clinical training.

Again, at Hopkins we are initiating a program in which a portion of each class will be allowed to accelerate in such a manner that the last year of medical school will be spent as an intern in the Johns Hopkins Hospital or some other hospital approved by the faculty. Thus the total time to the residency or assistant residency will be reduced by approximately one year.

2. A Revised Program of Medical Education — The Johns Hopkins Magazine, Volume 10, number 4, January 1959.

Post-doctoral Training

Almost all young physicians spend two to four years in post-doctoral training in some recognized medical center. At Johns Hopkins, for example, there are some 150 Fellows and an equal number of house officers, all of whom are "learners." Clearly our post-doctoral education responsibilities and opportunities equal those we now have in respect of pre-doctoral education. In my view, there is much that can be done to make these years professionally more rewarding, but that subject is beyond the scope of this paper.

Summary Comments

Let me now emphasize several points which I have alluded to above and which I deem to be of major importance in medical education. First, the real test of a school is the quality of its pre-clinical education, if for no other reason than that the basic science departments are the most difficult to staff with superior and inspiring teachers.

Second, the curriculum must provide sufficient flexibility to permit the student to develop his own professional individuality. Depth of study and active participation in the exciting processes of discovery must be the keynote, not passive learning through lectures and demonstrations. This requires a substantial full-time faculty as

well as the active participation of the part-time faculty.

Third, earnest thought should be given to better co-ordination of the pre-medical, medical school and post-doctoral phases of medical education. In the clinical teaching of the future, we shall not be able to rely upon the "free" patient, but inevitably must use private and semi-private patients in order to have access to adequate clinical material for teaching purposes.

Finally, the value of a medical school to a state or region cannot be estimated alone in terms of the number of students it graduates. A high quality modern medical school provides a scientific and professional center of inestimable value not only to the medical profession, but to all citizens. From such a center flows the life blood of prevention and curative medicine. Here is focussed the art of the present and the science of the future. It is unnecessary for me to dwell on the high cost of a modern medical school, but in balancing the cost against its value to all the citizens many considerations, both tangible and intangible, must go into the equation. The dynamic growth of medicine presents many challenges to medical education, and many opportunities. It behooves all of us to approach those problems with an inquiring mind.

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groups of depositors, the result would be exactly the same as in the case of a commercial bank following the same reckless course. The bank would finally go bankrupt, the businesses financed by it would be destroyed, and the depositors would be impoverished. Of course, one advantage enjoyed by the government over a commercial bank is that, when the federal government spends its money foolishly it can, by law, call upon its depositors — all the people — for more and more funds in the form of taxes. Worse, the government can inflate our money. Finally, all prices would go out of sight and everybody would go broke.

We must live within our means if we, as a people, are to prosper. Unless both responsible officials and all our citizens begin to insist that we make significant annual payments against our burdensome national debt, we will weaken the credit of the nation.

The medical profession, as much as any other, has a vital interest in preventing inflation. Cer-

tainly it wants to provide its services for a fee within range of what people can reasonably pay.

If the time ever comes when large numbers of our citizens turn primarily to the government for assistance in what ought to remain a private arrangement between doctor and patient, then we shall all have suffered a great loss.

The cost of inflation is not paid in dollars alone, but in increasingly stagnated progress, lost opportunities, and eventually, if unchecked, in lost freedoms for the doctor and patient.

For those who will take the trouble to look, there is no difficulty in seeing the relationship between fiscal responsibility and a successful, meaningful life for all in a climate of freedom. I am confident that you doctors, as community leaders in great urban centers and in the villages and farm areas of America, can do much to promote greater understanding of the importance of this vital relationship.

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THE FORM AND FUNCTION OF A SCHOOL OF BASIC MEDICAL SCIENCES

By Walter L. Hard

Dean, School of Medical Sciences

State University of South Dakota

Vermillion, S. D.

I SHOULD like to open this discussion with a quotation from a recent publication as follows: "The Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association believe that two-year schools of basic medical science under appropriate circumstances can make now and for the foreseeable future significant contributions to the established goals of medical education in the United States."

Only the future will dictate how important this action may be, but to those of us who have faced the problems of medical education in our local areas where the two-year school has made a significant contribution, this belated recognition is a very heart-warming experience. If then I speak with some feeling on the matter of a two-year school, and I openly admit to prejudice, please temper your judgment of my remarks with the realization that I have been through the days of birth out of wedlock and only recent have become legalized by the bonds of matrimony.

It was not in the too far distant past when these self-same accrediting agencies issued an ultimatum to our school to the effect that medical education could best be served by either the school closing its doors or expanding to a four-year medical school. You may well believe that such a situation was the precipitating factor in creating a very vigorous discussion on the future of medical education in South Dakota. Essentially there were three proposals to discuss. One was to embark on a subsidization program essentially the same as your present Western Interstate Compact for Higher Education but, in the parlance of the space age, this idea never got off the ground.

The second proposal, which did make considerable progress, was to initiate a four-year medical program. Notwithstanding a great amount of effort on the part of many individuals, the judgment of the state through its legislature was to reject an appropriation measure which

would have established a four-year medical school. While this reversal was a little difficult to accept at the time, the action ultimately proved to be a blessing in disguise. The state reasoned with considerable logic that a four-year medical school must first be predicated upon a very firm and substantial two-year basic program and elected to support the two-year program in a manner to which it previously had not been accustomed. There remained the hopeful expectation that this might eventually lead to the expansion of a four-year program when the economy of the state, its population, and the public attitude dictated the wisdom for such a move.

In the subsequent years, namely since 1947, our state legislature has furnished adequate support to a degree which has permitted the development of as sound an educational program in medicine as I believe is operating anywhere in this country not to the exclusion of the four-year medical schools.

This point is worthy of emphasis for one of the critical issues which has been raised here in Arizona, according to literature sent me for review, is the allegation that the educational merit of the two-year program leaves something to be desired. Such attitudes must be based on misconception or prejudice. Just a moment's reflection will identify for you that only the two-year school has a method of evaluating the merit of not only its program, but also its student accomplishment in comparison with not one, but 30 to 40 four-year schools. In short, we have a built-in evaluating device which even the four-year institution does not enjoy and, by extension, is not in the position to reap the benefits as are we. Our program is the product of exchanges of ideas between our students transferring to the different institutions and between the faculties and administrative officers of the schools concerned. It is axiomatic that if our educational programs were something less than sound, we certainly would not have many schools where we could transfer our students.

What precipitated the crisis concerning the

*Presented by invitation at the Annual Meeting of the Arizona Medical Association - May 1959, Chandler, Ariz.

two-year school a few years ago? The attitude which generally favored the closing of the school was dictated on the basis of a changing pattern in medical education which provided that clinical instruction should be introduced early in the medical curriculum, that is within the first two years. It was assumed this integration could not be effectively integrated in the environment of the two-year school with the absence of clinical facilities. Subsequent years have demonstrated the fallacy of such a conclusion and a brief examination of our curriculum will serve to illustrate how such a program may be implemented.

Curriculum in Brief

Now the designation of a school in "basic medical sciences" is no longer a descriptive appellation through the circumstances that one full year of the two-year program is devoted to courses of clinical instruction if you will permit the clinically oriented courses of pharmacology and pathology to be so designated. The first semester is devoted entirely to the subject area of anatomy and this is followed in the second semester with basic courses in physiology, biochemistry and microbiology. During the sophomore year, didactic instruction in the major medical specialties is concentrated in one full day a week throughout the school year. Here, also, through the medium of ward rounds the sophomore students are introduced to clinical problems and to the patient environment. Later in the semester, following a more formal course in physical diagnosis, the students encounter their first responsibility for the completion of physical examinations and case histories on patients in the medical service at Yankton State Hospital. This instruction in different physical diagnosis is continued during the second semester with a weekly period in three Sioux Falls hospitals which have an aggregate bed capacity of about 700 private patients. I would also note that throughout the second semester groups of students are introduced to psychiatric interviewing techniques on the private patient service of our two professors of psychiatry in Sioux City. Lastly, in fact the last month of the sophomore year, the students are assigned to individual physicians throughout the state on a form of preceptorship program with again provision made for educational emphasis on physical diagnosis and case history preparation.

Now it is axiomatic that with the introduction of this degree of clinical medicine in the erstwhile "basic years" does indeed require exactly the same type of clinical facilities, both teaching personnel and patient material, as is required for the four-year school. The difference is obviously one of scope and quantity but certainly not quality. So important are these clinical requirements as to cause me to offer the suggestion that this should be the only consideration, divorced of all other extraneous influences, which should dictate the choice of location of a school. Without a thoroughly competent clinical staff; that is to say, a nucleus of physicians dedicated to medical education and willing to sacrifice monetary gain from private practice in return for largely voluntary contributions to the teaching program, only then can the success of your program be assured. I am the first to acknowledge not only an indebtedness but the good fortune of having board trained specialists for all clinical subject areas who are unstinting of their contributions to the educational program. That a school of medical sciences should be located in a university environment is taken as a basic assumption, and the reasons for this will become apparent later on.

Singly, the most important factor which serves to influence the content and scope of our curriculum stems from the necessity of fitting our students for clinical progress in not one, but many four-year schools. Similarly, this same circumstance exercises a considerable influence on admissions policies since, in a sense, we are serving as admission officers for the schools accepting these students.

The one very needless obsession which creates a somewhat foreign attitude toward the two-year school centers on this process of transferring students. "Needless" through the circumstance that the South Dakota school has never failed to transfer a student who successfully completed the two-year program. There do exist some positive advantages to the student. In many cases students have compiled fine records at our institution and thus were able to gain admission for continued study at schools where otherwise, as freshmen, they would not have enjoyed this opportunity. More importantly, the students are virtually unanimous in expressing the attitude that their educational experiences are richer and more profitable by having at-

tended the two institutions.

The foreseeable future should not entail any significant problem in transferring students. A survey conducted two years ago, by the Association of American Medical Colleges, identified opportunities for 336 additional students at the junior level. However, based on my experience, this number is probably high. First, it is understandable that schools like to secure the best quality of student material and will accept students providing they are in the upper 10 per cent or in the upper third or half of the class. We are somewhat partial to the philosophy of those schools who recognize that without a bottom half, there would be no upper half, and are agreeable to pairing acceptances from these groups. Secondly, almost one-third of the medical schools require completion of Part I of the national boards to permit advancement or entrance to the junior class. Since these examinations are not available until the summer following the sophomore year, our medical students are understandably reluctant to place their chance for transfer on this examination when, at this late date, the vacancies in the alternate schools of choice are usually filled. In effect then, students are caused to pass over many excellent schools for transfer because they wish to avoid, and quite understandably so, the emotion-packed months of anxious waiting.

Financing

Since the matter of financing the construction and operation of a medical school is of primary concern, perhaps you would be interested in the cost represented in our institution. Our modern medical science building was occupied in 1952 at the cost of \$1 million for construction and the fixed installations including laboratory furnishings. However, its depreciated value is something less than \$20,000 per year or 10 cents from each taxpayer in the state. This summer an extension of one wing calling for about 10,000 square feet is being built at a cost of \$230,000 under the provisions of the Research Construction Act with equal shares of money being provided by the state and federal government. The scientific equipment for teaching and research has an inventoried value of about \$300,000. Since 1950 almost \$100,000 of research equipment has been added to the inventory from research grants at no specific cost to the state.

The operating budget for the coming fiscal year will provide for an expenditure of nearly

\$375,000. (Table 1) Of this amount close to \$300,000 is derived from state appropriations, student tuitions, and incidental fees, and the prorated state appropriation amounts to only \$1.25 per tax-paying citizen per year. The balance of the expenditures are from outside funds, namely the teaching and research grants.

TABLE I
Projected Expenditures — 1959-6
School of Medical Sciences
State University of South Dakota

Salaries	\$235,880	Local Funds
	10,700	Teaching Grants
	17,100	Research Grants
	<hr/>	
	\$263,680	Total
Maintenance	\$ 53,800	Local Funds
and	15,000	Teaching Grants
Operation	40,000	Research Grants
	<hr/>	
	\$108,800	Total
Total		
Expenditures:	\$372,480	

'No' for the State, 'Yes' for the Area

Now permit me to translate some of our experiences at South Dakota in response to many of the questions which I note have been raised here concerning the organization of a two, or even a four year medical school.

Is the mere presence of a medical school, either two or four years, the principle factor in assuring a more plentiful supply of physicians for the state? The answer would probably be "no" for the state, but "yes" for the geographical area. These opinions are based on a study (Hard, 1949) made just 10 years ago which presumed to identify the contributions made by the South Dakota school to the physician population of its state and area. Brief spot checks that time have not markedly altered the data. In 1949, a total of 19.1 per cent of the physicians in our state were graduates of our school, but this number has increased to 25 per cent at the present time. Seventy per cent of our graduates remained in the same geographical area to which they transferred in completing their medical study. On the basis of state residency, one-fifth (19.7 per cent) of the native South Dakota students returned to their native state for practice, but about three-fourths of all graduates are practicing in the north central area. In return, medical schools in neighboring states of Minnesota, Iowa and Nebraska have contributed

about one-third of the physician population in South Dakota. Perhaps this is a way of saying then that "a fair exchange is no robbery." However, there is ample evidence (Dietrich and Berson, 1953) that many four-year schools, even those state-supported with residency restrictions, do not retain more than 50 per cent of their graduates. It seems quite clear that medical schools in educating physicians are making a contribution to the health and welfare of the body politic at a national level, and one cannot limit its sphere or influence by political or territorial boundaries.

One of the primary purposes for initiating any educational program is to fulfill an unsatisfied need. The question presumes then; are the aspiring medical candidates successfully gaining educational opportunity in existing schools at the present time, and are they apt to in the foreseeable future? But by extension, we could ask whether or not a two-year school would perhaps serve as a stimulus for more students to enter medicine. There is certainly evidence to suggest that Arizona should be producing more doctors on the basis of population. South Dakota has been out-ranking Arizona, and indeed all states without medical education facilities, in a rather consistent manner. I have bothered to tabulate data (Table 2) for only the last six years with the 1957-58 class being the most recent for which figures are available. The national coverage has varied little around a figure of 4.7 freshmen students per 100,000 population, but whereas Arizona consistently falls below average, South Dakota has always exceeded the average and, on occasion, the ratio

is double that for Arizona. However, I do caution against an over-enthusiastic embrace of this prospect, for again there are other figures which are somewhat discouraging.

When our new building was designed back in the late 40s, we made provision for an increase in the size of our freshman class from 32 to 44, largely on the basis of the heavy demand occasioned by the returning veterans, and secondly, foreseeing in a population increase the probable occasion for an increased registration in medicine. It is rather disturbing to note that the trend seems to have gone in the opposite direction and to such a degree as to seemingly assure any qualified student gaining entrance into some medical school. This is suggested alone in the fact that Arizona has been able to place a sizable number of students in medical schools. But for South Dakota you will also note (Table 2) that many of the in-state students do gain entrance to medical schools outside the state. This loss is doubly embarrassing for invariably these are the better students as is suggested by their admission to other schools. In short, I would predict that even with the two-year school, you will not hold all of your qualified students, particularly so if the present trend continues. Such being the case, you would follow our course of procedure by filling the class with out-of-state students. While occasionally the taxpayer questions the justification for appropriating money to educate out-of-state students, we offer the satisfying explanation that this seems only a fair exchange, since we ask these other states to educate our students the last two years.

TABLE 2
Number of Freshmen Medical Students

Year	State	Number	Ratio/100,000	National Ave.
1957	Arizona	36	3.2	4.7
	South Dakota	36(28* + 8**)	5.2	
1956	Arizona	43	4.1	4.7
	South Dakota	39(25 + 14)	5.7	
1955	Arizona	22	2.2	4.6
	South Dakota	42(35 + 6)	6.1	
1954	Arizona	32	3.3	4.4
	South Dakota	38(30 + 8)	5.8	
1953	Arizona	36	4.0	4.7
	South Dakota	30(21 + 9)	4.7	
1952	Arizona	26	3.0	4.7
	South Dakota	35(24 + 11)	5.7	

*Attending University of South Dakota.

**Attending out-of-state medical schools.

Data compiled from the J. Am. Med. Assoc., Vol. 168 (Education Number), 1958.

Ten-Year Forecast

What happened to our predictions and forecasts of 10 years ago? Briefly stated, it is a case in the reduction of the absolute number of applicants leaving most schools scrambling for the qualified material. Further, this has occurred in the face of one of the most rapid increases in college enrollments that the country has experienced.

I have plotted (Figure 1) total college enrollments over the past 10 years identified in millions starting with about 2 million in 1948 and exceeding 3.4 million in 1958. The solid line represents the absolute number of medical school applicants for the same period plotted in thousands. The years of 1948 to 1951 would embrace a sizable number of veterans, but the very significant aspect of this graph centers over the past six years, when college enrollments have been on the up-swing, but medical applicants have barely maintained the minimal number. The figures on medical applicants for 1958 will show somewhere between 600 and 800 less applicants than last year and this, referring back three and four years on the college enrollment graph, spans a period when enrollments were rising rapidly. I think there is only one conclusion to be drawn from this graph, namely that a decreasing percentage of college candidates are seeking medicine. Time simply does not permit a discussion of the concern which

must be represented in these figures. For those particularly interested in this aspect of the problem, I would refer you to a recent publication by the American Council on Education authored by Dr. W. Max Wise entitled "They Come for the Best of Reasons — College Students Today."

Now even though we are not getting the number of applicants, it would be a very optimistic solution if we could report that we are getting the best quality of student. Indeed, the concern expressed for well qualified medical candidates is the subject of an editorial in a recent issue of the *Journal of Medical Education* authored by one of your panelists here today. (Bowers 1959) To satisfy my own curiosity in the matter, I surveyed the scholastic averages of all of our medical applicants for the years 1952, 1954 and 1959. (Figure 2) The percentage of applicants falling in each grade group are recorded, and to be emphasized is the relatively high percentage of candidates in the 1952 class that range on the left hand side or high side of the scale. By contrast, our most recent class, 1959, will show a much higher percentage on the right hand or low side of the scale.

I mention these data on the availability of qualified student material for three purposes. First, I think it adequately suggests how it is possible for any well qualified medical student to gain entrance into a medical school today. Secondly, it seems to me rather perilous to at-

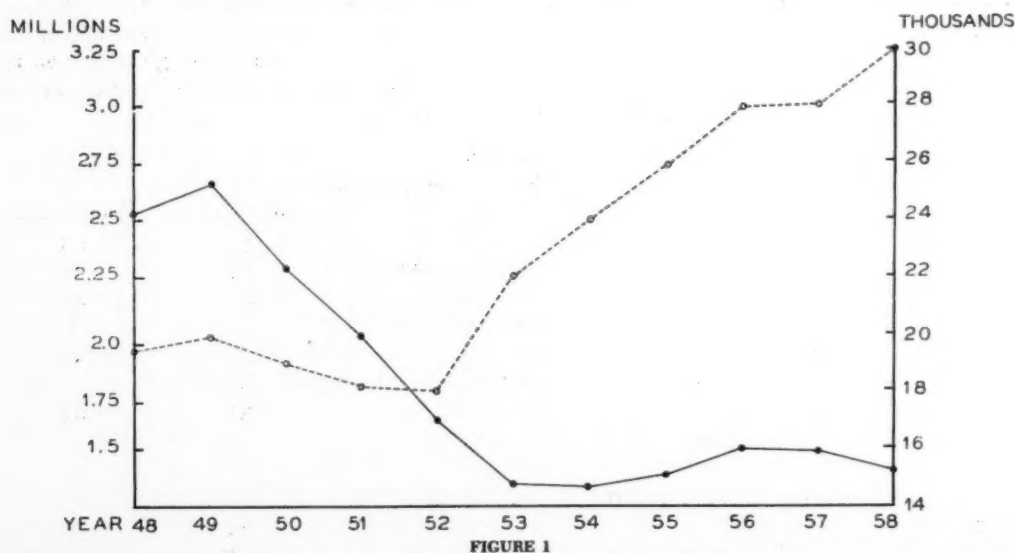


FIGURE 1
The broken line represents the trend in college enrollments, recorded in millions, during the past 10 years. Figures are compiled from reports of the Office of Education and School and Society. The solid line plots the number of medical school applicants recorded in thousands based on figures reported in the *J. Am. Med. Assoc.*, Vol. 168, pp. 1505, 1958.

tempt to predict the number of available medical students on the basis of college enrollments since at the present time it seems there is an inverse relationship between the two. Thirdly, the attraction or its opposite, the lack of interest of students entering the medical profession, and particularly those of high caliber, is a problem which strikes at the very core of the medical profession and its resolution certainly is not alone the responsibility of the medical schools.

Lest someone erroneously conclude that these data suggest this is no time to open a medical school, I would observe that it is during the "lean years" when action is required. The question is simply stated. How is it possible to attract more students into medicine in the absence of educational facilities? What will provide the stimulus to encourage the youth to select medicine as a career if no opportunity exists for the student to become impressed with

the educational environment of the medical school?

It is generally agreed that one of the most significant impacts made by four-year schools is the enhancement provided for medical care and services available to an area. The contributions which may be made by a two-year school in this context are not to be ignored as a substantial reason for the existence of such a school.

Time limitations do not permit my detailing the impact which certain specialized programs, sponsored by the school, have made in attempting to meet the needs of medical service in our state. Postgraduate medical programs for physicians and ancillary health personnel; consultation services for public health agencies; studies of diseases of rather endemic interest; these and many other contributions of similar type cause our state physicians to look to the school

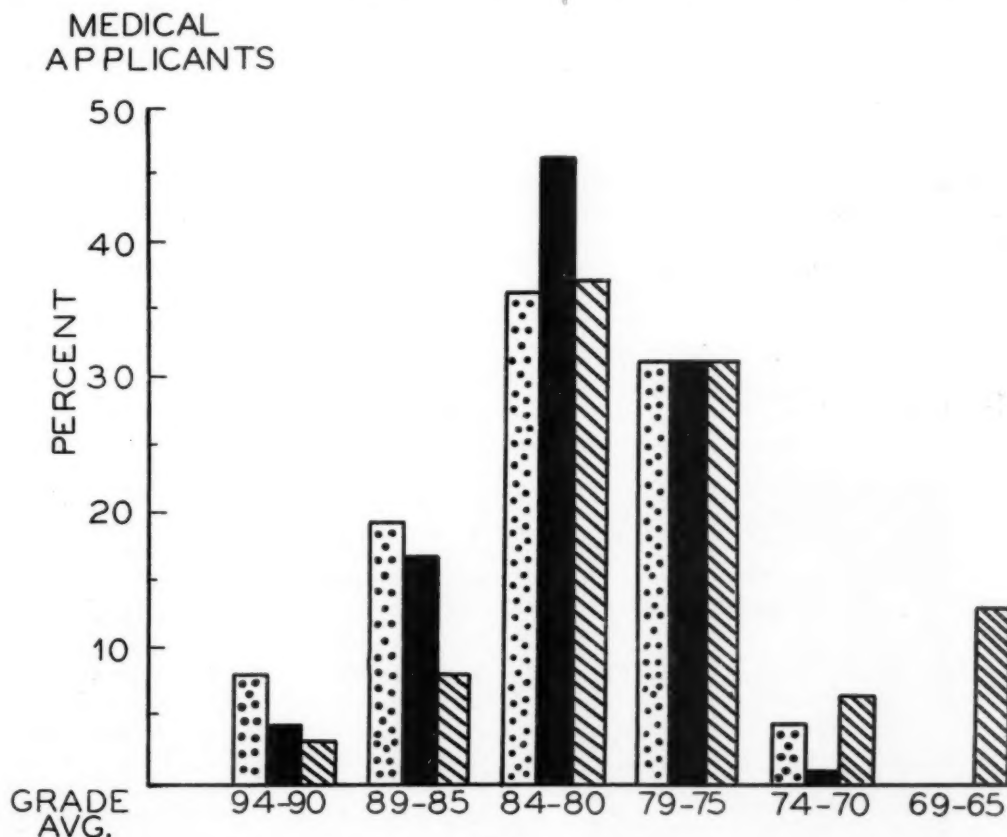


FIGURE 2

The percentage distribution of grade averages provided by all medical applicants is plotted for three classes, 1952 (stippled bar), 1954 (solid bar) and 1959 (lined bar). The total number of applicants represented in each year is 148, 162, and 309 respectively.

for counsel and assistance to the solution of some of their problems. Indeed, our basic faculty perform more than 3,000 diagnostic tests per year at the request of the physician population of which a sizable segment is distributed throughout small urban areas where specialized diagnostic laboratory services are not available.

Lastly, to restrict our attention and analysis of a two-year school only to medical education overlooks entirely what perhaps is singly its most significant contribution and this is the educational impact it exerts throughout the university system. Embracing as it does those symbols which typify the best in higher education, namely its academic standards, intellectual pursuits, the scholarly achievements characterized by research activity; these all serve to bring to the university a maturity and a stature which must be experienced to be appreciated. The only yardstick which may be used to evaluate the significance of this contribution can be recited only in the vacuum that would be created with the absence of the school. The graduate programs forsaken; the hundreds of arts students varying from nurses, to athletes, to music majors who elect undergraduate course offerings, the co-operative pursuits between staff members of different colleges; these and countless other educational ventures would be lost. Yes, these all serve to make up this cultural heritage we characterize as a university system.

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RELATIONSHIP OF THE PRIVATE PRACTITIONER TO A MEDICAL SCHOOL

Marvin E. Johnson, M.D.

MR. CHAIRMAN, members and guests of the Arizona Medical Association:

I wish to thank you for the opportunity to participate in your annual meeting. I am particularly grateful for the chance to share in today's discussion with the distinguished authorities from the field of medical education whom you have just heard.

By way of orientation, let me explain my own situation. I am a private practitioner of medicine from Denver, Colo. At the same time, I am a member of the volunteer faculty of the University of Colorado School of Medicine. In this capacity I endeavor to serve as a teacher by lecture work and supervising an assigned in-patient service at certain periods of the year. I also participate in the teaching programs of three of the private hospitals in Denver. It is from this experience that my opinions have developed.

The appraisal of any problem in the field of medicine must be made from the point of view of what is best for the patients. It is only from this perspective that we can safely view any of our activities or institutions. The best possible care of the sick and the most strenuous efforts to keep the well person in good health represent the only end that we can justify. Everything else is a means to this end.

If we fail to maintain this frame of reference, we might well reduce ourselves to the plane of the charlatan and the quack whom we hold in such disdain. We also lose our status as a profession, and we assume the role of a business, a bad business, to be sure.

The appraisal of the relationship of the private practitioner to a medical school is no exception to this generalization. The reason for the existence of both is the provision of the best possible care to patients and the protection of the health of our people at all times. We must examine this relationship in terms of this principle. Those outside of our profession must educate themselves to be aware of this concept, too. They must realize that superficial consideration will not always give the answer to the best

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method of doing this. The implementation of this desire is sometimes rather complex and requiring of careful orientation followed by unemotional, logical reflection. But we who are charged with the responsibility by oath and by opportunity must lead the way.

No two groups in the field are in a better position nor quite as responsible as those who train the people to do this task, and those who actually carry out the greatest part of the implementation. Let us then examine the relationship of the two as it must exist if they are to fulfill their respective assignments of helping each other to serve the patient.

Responsibilities

The responsibilities of the medical school begin with the training of the men who are to do the actual patient care. They must do everything possible to see that the doctor who comes from their training program is of the highest possible quality by utilizing every method and aid possible that will improve his ability.

The school must inevitably be a place for research and thus a source for increasing our total store of knowledge. It must also serve as a place where the indigent patient can come for first class medical treatment which he is unable to provide for himself. The school, too, will be a place of pioneering in diagnosis and treatment.

A medical school must have a continuing interest in the graduated physician, for this is a field of endeavor in which training and improvement of the individual must never be allowed to stop. The opportunity to advance must be provided often and in various ways.

To carry out these functions most effectively, it seems inevitable that the school will have to call upon the private practitioner. To make a mutually advantageous relationship, it will in turn have to contribute to the practitioner. Let us first deal with this side of the relation. What can the school offer?

The school offers the practitioner a chance to fulfill his obligation and his desire to teach those who will join and succeed him in his chosen profession. In this way those who appreciate what has been given to them can help to pass it on in a way that the best of it will be preserved unbroken. The status of a profession and the insurance of high ethical standards will be maintained.

The school can make available to the participating practitioner a chance to exist at least part time in the stimulating and uplifting academic atmosphere. Such a change in perspective should be of value to the busy man in helping him keep a proper orientation.

The presentation of short, concentrated courses in the specialties and in general practice are particularly valuable aids to the practitioner. They offer beneficial helps with a great economy of time and definitely improve the over-all level of medical practice in an area. On a long range basis, the school offers the residency programs which provide an opportunity for a practitioner to become a specialist, or to change his specialty if he so desires. If proper liaison exists, the school offers the practitioner a chance to participate in research if he has the desire or talent to do so. It was indeed a shrewd Dean who offered a country practitioner by the name of Banting an opportunity to do some experimentation on diabetes.

Young doctors in geographical proximity to a school will find a great opportunity for further development and maintenance of acuity by working in the teaching program while they await the development of their own practice. The indigent patients which utilize the school facilities will also benefit by the presence of these experienced doctors, who also have the time to really serve them. The older and the younger doctor both will find great satisfaction and chances of self-fulfillment in the opportunity for charitable activity in treating these people whose needs are great.

In short, the school which is properly directed can offer much in opportunity and reward to the practitioner with benefit to him and to the patient.

Doctors' Contribution

What, then, does the practitioner contribute to the school or what can he contribute under the proper circumstances? As a group, they offer a large pool of highly experienced talent from which the school can choose whatever amount it needs at no expense. These men can often offer highly specialized qualifications which can not be found elsewhere. This group of teachers will have the advantage of being self-motivated in an effort to maintain their efficiency and effectiveness as teachers. They have no protection of tenure or institutional reputation. They must deliver satisfactorily or be replaced by a superi-

or competitor, or be quietly dropped from the active list. Since they are present in abundance, they may be used to lighten the patient load of the full time teacher to whatever extent necessary.

The private practitioner will serve the special function of teaching the student and house officer his methods of handling the private patient. While "bedside manner" has no scientific virtue, perhaps, it is nonetheless of great value in helping the patient and his family in meeting the fears and problems that accompany illness. This behavior is second nature with the visiting man, and reflects invariably in his performance with patients and in his philosophy at conferences. Some such influence is necessary for the full development of the trainee.

The visiting man will often be of considerable value to the student or house officer in that he is and can be more approachable and sympathetic. He can be more sympathetic with mistakes and reassuring to the uncertain individual without sacrificing a position of authority or infallibility that a professor may have to maintain. In an endeavor so lonely and requiring so much equanimity as medicine, this may be very welcome and even a necessity to the neophyte plagued with doubt. The acquaintanceship and even friendship that develops during this relation will often be of great practical value to the junior man. He will need people who can speak for him with first-hand knowledge when it comes time for hospital appointments, or the search for a place to practice, or to support him during episodes of difficulty that may come early in his practice. No one of us can ever feel detached from or wholly disinterested in a person we have helped to train. He is forever a part of his teacher and the responsibility continues.

The doctor from private practice usually has a longer continuing experience with his patients and therefore comes to know the natural history of diseases and the results of treatment better than the institutional doctor. Too often the professor sees only the severe episodes, or has no chance to personally evaluate the end results at all. This is not a criticism, it is only a fact of life. The private doctor will, of necessity, have more experience in separating the major from the minor problem, a function that the professor may never be called on to perform.

The private practitioner will teach by example and admonition a great respect for the principle

of giving good medical care at the lowest possible cost. The teaching institution constantly fights against such problems as excessive laboratory work and prolonged hospitalization. The man best prepared to teach efficiency is the man who must perform efficiently or incur the wrath of patient and hospital administration alike.

And last but not least, from the ranks of private practice must come the general practitioner simply because he doesn't exist elsewhere. He is coming into the full recognition by educators and practitioners that he so richly deserves. He controls more patients and therefore ultimately has more to do with the course that the practice of medicine will take than any other group. What he lacks in special scientific knowledge in special fields he more than makes up for in wisdom that has come from broad experience and trial by fire. The student must be exposed to this man if he is to have a complete training.

Good Rapport Essential

There would seem to be no question of the need for a close relationship between the medical school and the private practitioner. There is great mutual need and the chance for great mutual contribution as we pursue the ultimate goal of good care of patients. What things can or do stand in the way of such a profitable association? Basically the reasons seem to fall into two categories. The first is the ever present human element. The second is the pressure from extraneous sources which do not necessarily have the interest of the patients in view.

Examples of the human element are the men of either side who are motivated by jealousy, feelings of inferiority, greed, or desires of power either personal or political. The medical school must be an institution of service. It can well be the hub of all medical activity. It must not attempt to be the dictator or central control of all medicine. There is no justification for its fostering a competition for the private patient. It has no right to divert tax funds for purposes of gain by a few individuals. If there is a true need for the private patient as teaching material, then private medicine and the school must agree on a method for directing the material needed to the school under circumstances which serve first the patient and then the mutual interests of school and practitioner. Such circumstances do exist, and are easily established if sincerely sought.

The private practitioner on the other hand

must be willing to concede the point that the medical school is greater than any of us individually. Its needs must be met, or soon we shall have no profession at all. He must be keenly aware of the status and treatment of his colleague who is engaged in teaching. Such teachers need his understanding and wholehearted support if their situation is to remain tenable. He should unselfishly help them to acquire the facilities and the compensation they deserve. Unjust treatment of any honorable doctor anywhere is a threat to all — if no more unselfish motive for support than this can be found, this should be a powerful stimulus for co-operation.

The second category of obstacles I shall only mention without elaboration. There are forces in action outside the profession that have special goals that do not consider either the patient or the doctor. It is obvious that a part of the strategy is to separate the medical profession into a number of fighting and ineffectual special interest groups and thereby control everything. The cultivation of strife between medical school and private practitioner is a basic tactic in this struggle. Both parties must be keenly aware of the possibility of false prophets.

The necessary goal of both medical school and private practitioner is the establishment of a relationship of loyalty and mutual aid based on sincere mutual respect.

It is only by establishing the relationship on these terms that each will be able to do the utmost to serve the patients in the best possible manner.

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Fred Dow Fagg Jr., Ph.D.

M R. CHAIRMAN, ladies and gentlemen:

I think it will take a very short time preceding the panel, to tell you people a little about our program, because I think you know most of the pattern of the commission. It's made up now of a group of states, and we have recently added Nevada. The Hawaiian Islands also will soon come into our program. WICHE was started in 1950. I think it was primarily to help those states which did not have medical schools, schools of veterinary medicine, or schools of dentistry. Students are sent from the states where there is no medical school, dental school, or school of veterinary science, to another state having such schools. Let me tell you a little about the program in medicine.

Arizona at the present time is sending 32 students, and those students are attending schools in five states. Arizona is sending four to dental schools and 26 to schools of veterinary medicine. Alaska is benefitting by sending six medical students, Montana sends four, New Mexico 36, Wyoming 16. There is something like a total of 94 students who might not otherwise find their way into medicine if it weren't for this Western interstate program. Thirty-eight students are being helped in dentistry. Incidentally, the costs for tuition of the 94 medical students is \$108,000. The tuition of 38 dental students is \$57,600. For the 109 veterinary medicine students, it costs \$130,800.

What we have been trying to do is collaborate here in the West, on the general theory that we ought to co-operate wherever our programs can be advantageous to one another. We are not only working in a field of the exchange of students, but we're trying to work in practically every field of higher education. One of the most active programs is in providing for nurses and the swapping of experiences in that field. One of the most interesting programs is mental health, which was started in 1956. We have organized a program to bring together people who are expert in the field of mental health, and to train more.

*Presented by Fred Dow Fagg Jr., LL.D., chairman, Western Interstate Compact for Higher Education, before the guests and members of The Arizona Medical Association, Inc., at its annual meeting in Chandler, Ariz., May 1, 1959.



the disease of many masks

Doctor, do you recognize this patient? She complains of flatulence, constipation with alternating periods of diarrhea, and colicky pains in the lower right quadrant. At other times she is troubled by anorexia, lassitude, dull headache, muscle pains and backache. Or she may have only one or two of these symptoms.

In these puzzling cases, serious consideration should be given to intestinal amebiasis—the disease of many masks. Clinicians say it is "one of the most widespread and serious protozoan diseases of man," yet "there is no parasite more often misdiagnosed than is *E. histolytica*." Conservative estimates place the incidence at 10% of the United States population as a whole, and 16% in southern states.

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Why are the universities concerned with this? It's primarily because we are the ones who have the programs that can train extra personnel and, as a result, we are trying to do everything we can in that area. This summer, at Stanford University, we will have a short course for those who are interested in the institutional research which underlies the better management of universities.

I think you might be interested in knowing of the financial side of the WICHE program. We receive something like \$80,000 a year from the individual states to help in the fields of our regular administrative programs. We have received through foundations over three-quarters of a million dollars, and we will have another half million for the next two or three years to work on programs that might be advantageous to the participating states.

I am delighted to be here to testify on behalf of the work of our 39 commissioners. We meet once a year and try to work out programs of benefit to all areas. We know that you people are interested in a program of medical education. We have no counsel to offer you except that you make a study of the needs of the State of Arizona. We also have been studying, for some months, what the West might need in the way of more doctors. We know our study will be interesting to you, but you have your own individual state problem. We offer our utmost co-operation to you. If there is any way in which we can be helpful, we hope you'll let us know.

Now, perhaps I can be of more help on the panel than elaborating on our program. We know you have a weighty educational problem. Through the Western College Association, I have worked for many years with Dr. Grady Gammage and Dr. Richard Harvill. You can be sure the latchstring is out anytime we can be helpful to you with your problems.

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1. Hodges, F.T.:
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ARIZONA MEDICINE

Journal of

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The Editor sincerely solicits contributions of scientific articles for publication in ARIZONA MEDICINE. All such contributions are greatly appreciated. All will be given equal consideration.

Certain general rules must be followed, however, and the Editor therefore respectfully submits the following suggestions to authors and contributors:

1. Follow the general rules of good English, especially with regard to construction, diction, spelling, and punctuation.
2. Be guided by the general rules of medical writing as followed by the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.
3. Be brief, even while being thorough and complete. Avoid unnecessary words. Try to limit the article to 1500 words.
4. Read and re-read the manuscript several times to correct it, especially for spelling and punctuation.
5. Manuscripts should be typewritten, double spaced, and the original and a carbon copy submitted.
6. Articles for publication should have been read before a controversial body, e.g., a hospital staff meeting, or a county medical society meeting.
7. Exclusive Publication—Articles are accepted for publication on condition that they are contributed solely to this Journal. Ordinarily contributors will be notified within 60 days if a manuscript is accepted for publication. Every effort will be made to return unused manuscripts.
8. Illustrations—Ordinarily publication of 2 or 3 illustrations accompanying an article will be paid for by Arizona Medicine. Any number beyond this will have to be paid for by the author.
9. Reprints—Reprints must be paid for by the author at established standard rates.

The Editor is always ready, willing, and happy to help in any way possible.

(The Opinions expressed in original contributions do not necessarily express the opinion of the Editorial Board.)

WHAT DID IKE SAY?

By Leslie B. Smith, M.D.

SINCE PRESIDENT Eisenhower addressed The American Medical Association on June 10, 1959, there have been varied statements and interpretations relative to what he said. He has been credited as stating that doctors charge too much — that he advised a reduction in doctors' charges — that he blamed the doctors for contributing to inflation, and that our fees are unreasonable.

He did not accuse doctors of any malice or wrong; but, contrary-wise, he was most laudatory as exemplified by the following quotations: "The American Medical Association, representing physicians in general practice and specialties in many fields, has brilliantly earned the high position it holds in the nation." "Indeed, Lord Bryce observed on one of his last visits to the United States that 'medicine is the only profession that labors incessantly to destroy the reason for its own existence.' He cited the health gains brought about by medicine during the last 40 years, and commented ". . . for all this, the nation is profoundly grateful." ". . . the well-nigh unbelievable advance of medicine during these past 100 years . . ." ". . . one out of every 10 Americans enters a hospital each year, and most of them quickly return to their normal activities."

Mr. Eisenhower's discussion of our economy and its future with the inevitable impact of the inflationary trend was indeed basic, well stated, and worthy of review by all. The President challenged us as, ". . . community leaders — to promote greater understanding between fiscal responsibility and a successful, meaningful life for all in a climate of freedom."

The only mention of fees by our President was in this paragraph: "The medical profession, as much as any other, has a vital interest in preventing inflation. Certainly it wants to provide its services for a fee within range of what people can reasonably pay." Did he mean that we are not now, with rare exceptions, complying with this formula? From the tone of his speech con-

sidered as a whole, I am sure that he did not intend to make any insinuation, but embodied 'reasonable fee' as a structure with the basic principles of medicine.

President Eisenhower's address is reproduced in this issue, and the reading of his speech will be enjoyed by all those who can spare 10-15 minutes. It is my opinion that we can well serve our public relations by requisitioning reprints to place in all our offices for distribution to our patients and friends — order today.

EDITOR'S NOTE

Included in this issue are six of the articles as presented at the recent state medical meeting held in Chandler, May 1959, in regard to medical education in the United States with particular reference to the establishment of a medical school in Arizona. Four additional articles will follow as soon as they are available. All of the articles will be published at a later date in a pamphlet for distribution to those who desire this information in concise form.

LETTER TO THE EDITOR

Sir:

Thank you for your note in reference to the letter which my father had written in 1916. As I indicated, it occurred to me that perhaps some of the newer practitioners might be interested in what things were like "in the good old days," and some of the older men who might have known my father might reminisce a bit on the tale which a newcomer to the area has to tell to the folks back East.

Here is the letter.

J. R. HORST, M.D.,
Los Angeles, Calif.

OFFICE OF
J. L. WALES, M. D.
TRUST BUILDING
GLOBE, ARIZONA. May 12, 1916

Dear Grandparents:

It is now noon and I have today made 4 calls on private patients and have seen 3 in the office. One is spending 6 months of his valuable time in the jail for bootlegging and he has several to keep him company. This month I have collected \$100 in Globe besides my \$200 for my big trip, so I have a pretty good start for this month.

Now, I promised to tell you about my return trip. First let me say that the ranch where I stayed covers an area 15x25 miles, about 400 square miles, or more than twice the space covered by the whole city of St. Louis, and that there are about 6000 cattle there. They were just starting to have a round up having a contract to ship 1000 yearlings. A steer one year old brings \$33, 15 years ago it brought only \$5. The ranch just sold for \$325,000, and the new manager was the one hurt by his horse falling on him. The elevation there is 5,000 feet, in Globe it is 3500 and in Phoenix 1200, so that it was

cooler than at Globe and some of the trees were not entirely out. The people live up to the name of the place "Pleasant Valley" but are a long place away from a railroad having to drive their cattle 100 miles to the nearest railroad. When they visit Globe they come as I did or ride 90 miles on horseback. All supplies have to be stored up in summer and many have to be packed in on burros, last winter they had 2 foot of snow with 15 degrees below zero. One of the cowboys, or cowpunchers as they call themselves, had punched cattle in the Panhandle district and was in Woodward when it had only a dozen buildings. He was there 2 years ago and says it is a flourishing town of 5,000. He had also been a rider with the wild west show 101 ranch and had been all over U.S. with them. Besides this he has taken the part of a cowboy in moving picture shows, been bartender, railroad man, forest ranger & etc. He told me of a 14 year old boy in this neighborhood who had never seen a railroad, so it takes all kind of people to make a world.

When I was ready to start back Mrs. Marley took a kodak picture of me on my horse with my cowboy regalia, and when I get them I will forward them on to you. I left at 9 am Sunday, rested but still a little stiff from my ride. We rode till 11 o'clock when we reached the rock house. Here I saw my first asbestos mine. Did you know that it was mined and sold at 20 cents a pound in the crude state? Here was also the ruins of the prehistoric people, the remains of rock houses was all that I could make out. The men had dug up a skeleton shortly before. At some of these places they have dug up beautiful vases 4 & 5 feet high, and also have found finger prints which with the small skeletons point to the people being rather small. Another thing

rather curious is that these places are all on hills and mountain tops where water is not conveniently had. The miner here cooked our dinner on an open fire. He used an iron pot with the lid having upturned edges to hold the red coals and thus furnished an oven in which he bakes the bread.

After an hour we started out again and went over the mountains, each one a little lower and as we reached the lower level in the afternoon it was quite warm. When my guide was about a mile ahead of me on one of the lower hills, I noticed my horse suddenly prick up his ears and ahead I saw an old bull in an open corral looking wickedly, straight my way. What did I do? Why I immediately, at once, turned to the side and gave Mr. Bull a wide berth, this hombre (Mexican for man or fellow) was not looking for trouble. Quite often we passed a bunch of cattle, and finally a group of about 30 horses. We had now reached the Flying H ranch where we were to pass the night. It was now 4:30.

At the Flying H ranch there are 15 cowpunchers and as they were having a round up, I got to meet them all. The cook had an idea that I would be back about this time and so in honor of the doctor he gave us for supper some fine fried spring chicken, yum yum, it did taste good. Besides this we had beans, corn, preserves, butter, coffee, and green peppers, this is a great country for canned food. Everything is packed to this ranch on burros, including corn for the winter use of the horses. Everything is rocks, rocks and rocks. In order to make a garden you have to dig a hole and then put the rocks in the bottom to get enough soil. There was a small patch of good ground on which they grew alfalfa and supplied it with water by an irrigation ditch. From this ditch we got our water, washed our faces and then pretended to wipe on the common towel, which was white at one time but now was about the color of weak coffee. There were no women at this ranch, the house had 4 rooms, no carpets, no chairs, boxes taking place of the latter, and I assure you that the cook's shirt had not seen a washing for at least a month, while his trousers had enough grease in them to fry a pan of potatoes. Several men had sore eyes which gave me a little to do. After supper an interesting poker game was in progress but about 10 pm I decided that sleep would do me more good than watching the game. Each bed was wrapped up in a piece of canvas, one

of the men spread the canvas and put a few extra blankets on it and I was ready to retire to my room, the roof of which was the sky. The nights are always beautiful here, especially moonlight nights, when you can almost read a paper by moonlight.

I slept the sleep of the just and did not hear a thing till I was awakened by the loud call of the cook. I looked around and saw everyone throwing off the covers and did likewise. As it was not the style here to completely disrobe at night, all I had to put on was my shoes and socks. But the sun was not in sight and my watch said 5 o'clock. After breakfast of some more of that fine spring fry we went back to the corral, where the horses had been turned in and every man took his rope and lassoed his mount. Some did the blacksmith stunt shoeing their horses.

Again decked out I bid them adios (a-de-os good by). After going 12 miles through a country free from trees but full of cactus and small brush we stopped at a ranch surrounded by beautiful green, a regular oasis. Here is a very large fig tree, claimed by some to be the largest in U.S., it also gives 3 crops a year. By this time I felt quite a rider, my guide complimented me on riding so well for not being used to it and said that if I would ride a little each day I would soon be a good rider. He then told me that he had seen some easterners ride 10 miles be so sore that they could not get around for several days, whereas I had ridden 50 miles at one stretch with very little discomfort the next day.

Here I was turned over to a new guide, who took me to the next stop, the ferry where I had left my car. It was awfully hot in this region around Roosevelt lake, and I got a severe sunburn from which I am still peeling. After crossing the ferry I had completed my 100 mile horseback trip and was delighted to see that no one had run off with my faithful Lizzie. The ferry man had kept an eye on it for me. He gave me dinner and at 2 pm we left the lake. I had the parts needed for repair of the hub sent out and found them at one of the houses but decided it was too big a job to change and went straight through to town. At one place there is a long hill, 7 miles long, and I had to stop several times to give my engine a chance to cool.

At 5 pm I returned to the beautiful town of Globe, dirty, and weary but not foot sore. The trip had been a hard one but it was such an experience as I had never had before and I had

really enjoyed it, and would not have missed it for anything in the world. That evening at supper I started to leave the table without waiting for the dessert (strawberry shortcake) so long had I been away from civilization. For a couple of days I walked with a heavy tread, and felt as if I was still in the saddle, and also nursed a raw place where the stirrup rubbed my ankle, and felt like sitting only on well cushioned chairs. But now I am feeling fine as ever, for I certainly never was better nor more fit to make a hard trip.

Wherever there are people there is an occasional need for a doctor and so someday I will make this trip or a similar trip again. This patient got as good service as he could have gotten in St. Louis or anywhere else, that is as it should be. All this bosh about country doc's not needing to know much should be forgotten, for when a doctor gets 88 miles from the nearest place to get a consultation he is thrown on his own resources and should know all there is to be known on a subject. My hospital experience certainly comes in handy and I am glad that I took all that I did, and that I went to the very best medical school.

This is quite a letter and I will ask you to excuse me for a while as I have quite a little reading that I wish to do besides taking in a couple of dances soon. I am now a member of the Cobre Valley Country Club. Cobre is Spanish for copper. Golf is all the craze but I do not expect to take it up, but will stay on the job and pick up as many dollars as possible.

With love & very best wishes.

Best regards to the Maupus Family.

(Continued from Page 626)

service to yourselves, and to all of us, as you teach that the future of our republic and the free world depends upon our ability to maintain fiscal soundness in government, a robust economy, and a stable dollar.

Impressed as we are by progress in the medical sciences, including miracle drugs, miracle operations and breakthroughs in eliminating heretofore incurable diseases, we sometimes forget that this progress deposits new problems on our doorstep.

Familiar conditions, even perspectives, have a disturbing habit of changing profoundly over a short period of time. For example, some of you may recall a remark made by your distinguished

fellow professional, Sir William Osler, at the turn of the century. In his farewell address at Johns Hopkins University before returning to England in 1905, he said:

"My second fixed idea is the uselessness of man above 60 years of age and the incalculable benefit it would be in commercial, political, and in professional life, if, as a matter of course, man stopped work at this age."

In 1905 I was 15. It is quite likely that I then, and others here of a comparable age, would have agreed with Sir William. But certainly we now repudiate the thought.

Nonetheless, the sober fact was that more than half a century ago, relatively few people reached the age of 60. The average life expectancy for a person born in 1900 was 48 years. Today it is over 70. In 1910 there were 3 million men and women 65 years of age and over; today there are more than 15 million.

This shift in the age pattern of our population has been accompanied, of course, by revolutionary changes in our social and economic structure.

We are no longer an agrarian society. Industrial and technological changes have centered our population in cities and large towns, bringing far-reaching alterations in our living habits.

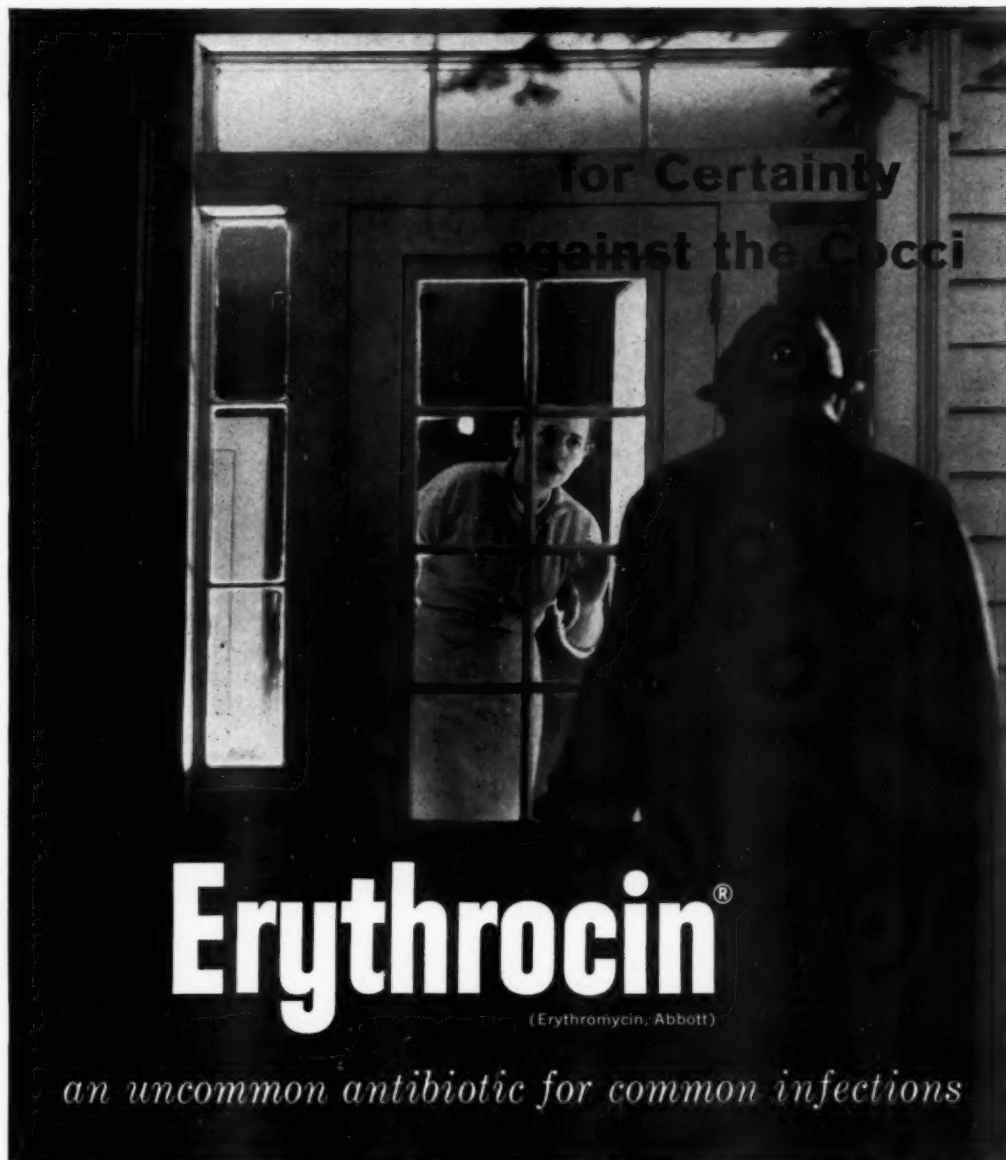
Thus most of our senior citizens of today no longer can enjoy the relative security which their pioneering parents and grandparents provided for themselves individually as farmers or as small, independent shopkeepers. Our older people largely live, today, on fixed retirement income represented in pensions, insurance policies and savings. To this group, inflation is not merely a threat — it is a robber and a thief. It takes the bread out of their mouths, the clothes off their backs, and it limits their access to the medical care and facilities they need.

Here is a situation that calls for true team effort among the medical professions, industry, government, and the broad body of our citizenry.

We must work together to make possible for our senior citizens, meaningful activity so that they can become — as they all hope to — independent, useful and creative members of our society.

I learn that the American Medical Association has embarked upon an all-inclusive program to re-orient our thinking about the place of elder citizens in modern society and to help them

(Continued on Page 652)



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Topics of Current Medical Interest
ARIZONA POISONING CONTROL INFORMATION CENTER
IN CO-OPERATION WITH THE ARIZONA
MEDICAL ASSOCIATION
*Neurotoxic Effects Accompanying Poisoning
From the Phenothiazine Tranquilizers*

PERHAPS THE most alarming of the toxic effects associated with acute poisoning from the phenothiazine tranquilizers (e.g. chlorpromazine (Thorazine), promazine (Sparine), prochlorperazine (Compazine), perphenazine (Trilafon), and mepazine (Pacatal) are the severe neurological manifestations sometimes referred to as an "extrapyramidal syndrome." These reactions may consist of recurrent episodes of marked drowsiness and lethargy, drooling, fixed stare, oculogyric crises, retraction and spasms of the neck, trismus, opisthotonos, and sometimes flexor rigidity and hyperreflexia(1,2). It appears that children are particularly susceptible to this toxicity of the phenothiazines. The labile nervous system of children has been suggested as a possible reason for this susceptibility(3).

The similarity of the neurological reactions resulting from the phenothiazine-type tranquilizer to those accompanying certain disorders involving the central nervous system has resulted in diagnostic confusion(3,4). For example, severe retractional and rotational spasms of the neck have led to confusion with meningitis. Trismus has suggested tetanus. Posterior-hindbrain signs such as speech, swallowing and respiratory difficulties (laryngospasm) have indicated diagnoses of bulbar poliomyelitis and led to preparations for tracheotomy. Marked opisthotonos with extensor spasm of the extremities has been interpreted as decerebrate rigidity(2). Nelson(2) has suggested that "diagnostic confusion may be cleared by consideration of phenothiazine intoxication in any patient with an intact sensorium and the acute onset of severe and unusual extrapyramidal and bulbar signs (particularly fixed stare, drooling, trismus, opisthotonos, and shoulder-girdle spasms.)" An example of a case history recently reported in the literature(1) which would tend to support this view is as follows:

"A 17-month-old boy was admitted to a hospital because of drowsiness and opisthotonos. The patient had been well until 4½ hours

prior to admission, when it was noticed that the child's head was 'drawn back and pulled to one side.' The child then fell to the floor, but was not unconscious. The episode lasted only a few minutes and the child appeared normal except for drowsiness, which lasted an additional five to 10 minutes. Another episode occurred in 30 minutes. Shortly after admission to the hospital, two additional attacks of opisthotonos and drowsiness were observed with a 30-minute period. The mother was questioned as to whether she had given the child a tranquilizer or whether such a drug was present in the home. The mother opened her purse and found an empty bottle which had contained several 5 mg. prochlorperazine (Compazine) tablets. Only a few of the tablets were found loose in the purse. The mother had recalled that the child had been playing with her purse two hours prior to the onset of his episode."

A simple, rapid chemical test which may aid in the detection of phenothiazine toxicity is the ferric chloride test reported by Forrest *et al.*(5). A test solution consisting of four parts of 10 per cent sulfuric acid with one part of 5 per cent ferric chloride solution is employed in this test. Equal volumes of urine and the test solution (e.g. 1 ml. of each) are mixed in a test tube. The rapid formation of a color varying from light to dark violet is indicative of the presence of a phenothiazine derivative. The violet color is considered to be due to the reaction of a relatively unstable metabolite of the phenothiazine tranquilizer with ferric ions in an acid medium(5). The low pH of the test solution is said to establish an acidity at which no interference by salicylates, such as aspirin, is possible.(5) A slight modification of the ferric chloride test used to detect the presence of a metabolite of a phenothiazine tranquilizer in the urine has been recently reported.(6)

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STATISTICS OF 93 POISONING CASES IN ARIZONA DURING JUNE 1959

	Per cent	Number
Under five years	76.3	71
Six to 15 years	2.2	2
16 to 30 years	8.6	8
31 to 45 years	5.4	5
Over 45 years	3.2	3
Not reported	4.3	4
Nature of Incident:		
Accidental	91.4	85
Intentional	8.6	8
Time of Day:		
Between 6 a.m. and noon ..	30.1	28
Between noon and 6 p.m. ..	29.0	27
Between 6 p.m. and midnight	18.3	17
Between midnight and 6 a.m. ..	1.1	1
Not reported	21.5	20
Outcome:		
Recovery	100.0	93
Fatal	0.0	0

*CAUSATIVE AGENTS:

Internal Medicines

	Number	Per Cent
Aspirin	21	21.9
Other Analgesics	1	1.0
Barbiturates	10	10.4
Antihistamines	3	3.1
Laxatives	1	1.0
Cough Medicine	0	0.0
Tranquilizers	2	2.1
Others	5	5.2
Subtotal	43	44.7

External Medicines

Liniment	0	0.0
Antiseptics	4	4.2
Others	2	2.1
Subtotal	6	6.3

Household Preparations

Soaps, detergents, etc.	2	2.1
Disinfectants	1	1.0
Bleach	2	2.1

Lye, corrosives, drain

cleaners	3	3.1
Furniture and floor polish ..	1	1.0
Subtotal	9	9.3

Petroleum Distillates

Kerosene	2	2.1
Gasoline	3	3.1
Others	1	1.0
Cosmetics	2	2.1
Subtotal	8	8.3

Pesticides

Insecticides	11	11.5
Rodenticides	0	0.0
Others	0	0.0
Subtotal	11	11.5

Paints, Varnishes, Solvents, etc. ..	5	5.2
Plants	2	2.1
Miscellaneous	6	6.3
Unspecified	6	6.3

TOTAL 96* 100.0

*The total number of causative agents exceeds the actual number of poisoning cases since in certain individual poisoning incidents more than one agent was involved.

WILLIS R. BREWER, Ph.D.

Dean, College of Pharmacy,

The University of Arizona

ALBERT L. PICCHIONI, Ph.D.

Pharmacologist and Director

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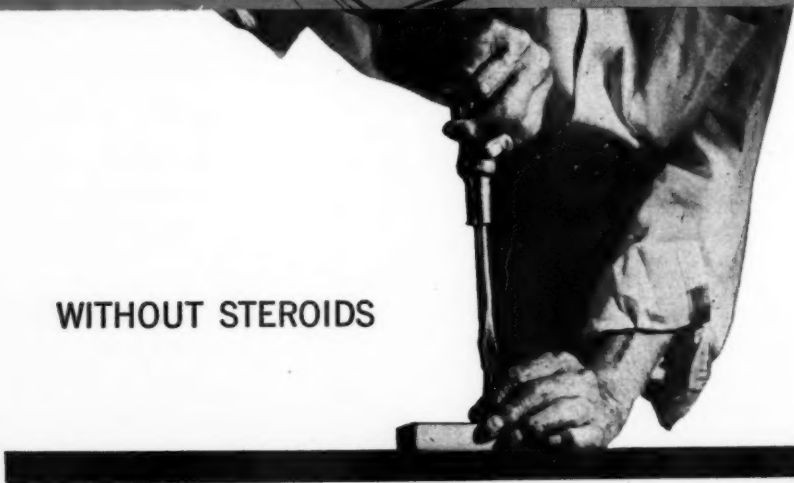


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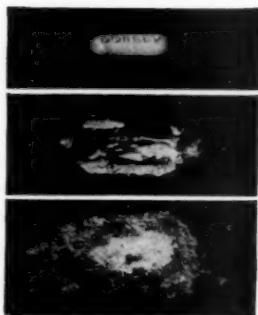
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3 or 4 times daily.

References: 1. Hart, D.; Bagnall, A. W.; Bunim, J. J., and Folley, F. H.: Ninth International Congress on Rheumatic Diseases, Toronto, Ont. (June 25) 1957. 2. Report of Joint Committee, Medical Research Council & Nuffield Foundation, Treatment of Rheumatoid Arthritis, British Medical Journal (April 13) 1957. 3. Friend, D. G.: New England J. Med. 257:276 (Aug.) 1957.

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HOSPITAL PROBLEMS IN A MEDIUM-SIZED COMMUNITY

Arthur Dudley, M.D.

I WAS most pleased and highly honored to be invited by Dr. Bellaire to speak to you gentlemen regarding "Hospital Problems in a Medium-sized Community." However, to make the title more descriptive, it should be "Hospital Problems in an Isolated, Growing, Medium-sized Community."

Tucson, Ariz., population 235,000, is in the southern portion of the state. For sake of definition, there are only two cities in Arizona: Namely, Phoenix and Tucson. The smaller communities of Arizona range in population from a few hundred to a few thousand. The closest city, Phoenix, is 125 miles to the north. Tucson, like most of the communities in the Southwest is enjoying an explosive population increase of 1,200 per month.

Our hospital problems can be categorized into those of staff and those of administration, but they cannot be separated.

Arizona has 33 general hospitals, either publicly or privately supported. In Tucson, there are two general hospitals which admit private patients. St. Mary's Hospital has a capacity of 312 beds plus 45 bassinets; Tucson Medical Center, a capacity of 236 beds plus 40 bassinets. Both hospitals are currently expanding to increase this total by 200 additional beds. In addition, the Pima County Hospital has a 140-bed capacity for indigent patients. This gives a total of 548 beds available for private patients. During the five years that I have been in Tucson, the population has increased some 75,000 while the total bed capacity has only increased by 45.

The remaining hospitals in the community have a combined total of 344 beds, but these are largely restricted in the nature of their admission policies such as the VA, railroad and Indian hospitals. In addition, Davis-Monthan Air Force Base has had an economic and population impact on the community. They have a total of 90 beds plus 23 bassinets available. The military dependents have periodically relied upon local facilities depending upon the number of doctors assigned at the base.

There are only 1,121 doctors in the State of Arizona, nearly 800 in the Phoenix area. There are 245 members in the Pima County Medical Society, of whom only four do not practice

in Tucson. Of the 240 doctors practicing in Tucson, 40 are GPs, 112 or 48 per cent, are board certified specialists. The remainder are either board qualified specialists or general practitioners who limit their practice to very small fields, such as internal medicine or pediatrics. The 83 surgical specialists are headed by 27 general surgeons, 10 orthopods, 15 OB-GYN, five urologists, five chest surgeons, two neurosurgeons and one plastic surgeon.

The Tucson doctor generally is on the active or courtesy staff of each hospital and in addition, serves on the staff of the county hospital. He donates a certain portion of his time each year covering one of the services at the county hospital on a voluntary basis.

Admission to Staff

Admission to the staff at either of the private hospitals creates no obstacle to the new doctor in town. An application is submitted to the administrator stating which privileges he is applying for. The general practitioner would generally apply for internal medicine, pediatrics, uncomplicated obstetrics, and minor surgery. Either the administrator or the chief of staff has the authority to issue temporary courtesy staff privileges. An individual remains on this staff until his credentials are verified by letter to hospitals and medical societies of previous residency, and until he has become a member of the local medical society. While on the temporary courtesy staff, he must be sponsored by a member of the active staff, who, in turn, assumes the responsibility for his conduct in the hospital. However, he does have full privileges within the realm of his capabilities. Upon verification of credentials, the application is then passed by each of the various committees, including the committee of general practice. The completed application is passed on finally by the executive board, composed of seven doctors plus the administrator at St. Mary's Hospital, and the professional staff at the Tucson Medical Center. Full courtesy staff privileges are then awarded. At a stated interval, he is eligible for promotion to the active staff.

The Staffs

The staffs at both hospitals are self-governing. There is a president, president-elect, vice president, secretary, and three to six members of the

executive committee or medical advisory board. The officers are elected by the active staff for a one-year period of time, and the executive board is elected for three years on a staggered-term basis. The executive board meets with the administrator monthly to review committee reports and general administrative problems within the hospital which would affect the professional staff. In both our hospitals, the administrators do not interfere in those problems which are purely professional; however, they do determine the amount of help and space available, hospital resources and liabilities in solving these problems. Thereby, the professional and administrative staffs work as a team.

The executive board also acts as a board of censure. Any doctor charged with misconduct is brought before this board. The matter is thoroughly investigated and a decision and disposition made. Fortunately, there have been very few instances in Tucson whereby it has been necessary to remove a man's privileges. Those individuals who are guilty of flagrant misconduct are generally removed from the county society membership at the time that they lose staff privileges.

Both hospitals hold staff meetings quarterly. The various departments are represented by committees which meet monthly and which operate regularly in order to police their own individual services. These committees are also responsible for the review of applications to ascertain whether an applicant is eligible for privileges within their respective departments.

Bed Shortage

With a total bed capacity of 548 beds for private patients in a population center of 235,000, our biggest problem is lack of hospital beds. Over the past several years, the hospital administrators have set down a rather hard and fast rule that the admission will be made purely on a first-come, first-served basis. During the winter months, when there is a large influx of winter visitors which will increase the population by approximately 50,000, there is an acute bed shortage and it has been necessary to resort to hall beds. The administrators have been very helpful in increasing the total bed capacity by making three-bed rooms out of semis, and semis out of what were formerly private rooms. Also, they co-operate by moving patients so that beds will be utilized to the greatest extent.

Both hospitals have an internship-residency program. Unfortunately, most of the interns and residents are foreign-born and the problem of communication does exist. Repeated attempts have been made to improve the quality and type of program so that American medical school graduates will become interested in the community, but to date this has met with very little success.

Out-patient Facilities Lacking

Pima County Hospital maintains a very active in-patient service and clinic for the welfare patient. However, there are no true hospital out-patient clinical facilities for the medically indigent. They are cared for in private offices on a no-fee, or partial fee basis. The private hospitals sustain a sizable annual loss on these patients requiring hospitalization. This is quite dissimilar from many of the centers in the East where the hospital maintains an active out-patient clinic for house staff training. This factor, possibly accounts for the difficulty in attracting qualified interns and residents. The hospitals have found it financially impractical to open and maintain active out-patient departments. Like all hospitals throughout the country, the cost of personnel, supplies and equipment has sky-rocketed much faster than the fees received from bed rentals and services. So long as our population continues to expand at the present rate, our hospitals will continue to operate on merely a break-even basis and will not be able to institute clinical out-patient departments.

The hospital administrators, one a Catholic sister, one a lay administrator, for the private hospitals, and a third a medical doctor for the county hospital actively co-operate with each other in the fields of hospital administration and finance. These three administrators meet regularly for discussion of mutual problems, especially concerning the hospital care of the medically indigent. No patient is refused hospitalization because of inability to pay. An example of co-operating financially is the recent successful completion of a joint hospital drive which raised \$1 million by voluntary subscription and their joint support to obtain maximum amounts of Hill-Burton funds. These monies were shared equally between them for construction of 200 additional hospital beds.

One of our greatest problems is lack of nurses and ancillary personnel. At the present time,

we have a three-year diploma school for RNs. The new collegiate program at the University of Arizona graduates its first class of nurses next year. We have a school for practical nurses and these, in turn, assume many of the duties of the RNs. Hospital help, however, is seriously short at best, critical at times. Out-of-state sources supply the majority of trained personnel.

GP's Role

Last, but not least, I should mention the role of the general practitioner. As stated above, there are 40 general practitioners in the community, only four or five do major surgery. For those of you who are in a community where major surgery is authorized for general practitioners, this may seem unduly restrictive. However, I feel that we in Tucson are the prototype of general practice in a medium-sized community. In my own practice, I cover the fields of general medicine, pediatrics, obstetrics, and minor surgery. All of us are actively engaged in hospital practice. However, office practice is the lion's share of our work. The new general practitioners objecting to these restrictions at the hospitals are those men who come from communities outside of the state where they were formerly doing general surgery. However, if a man qualifies by training in surgery, he can get a position on the surgical staff. The Tucson GP is so busy with office practice that there is no incentive to supplement his income with surgical procedures.

Our relationship with the specialists in town is ideal. The referred patient will be returned to us for further care and treatment. Many of the specialists sign out to a GP on weekends or days off. The Southern Arizona Chapter of the Arizona Academy of General Practice utilizes the specialists to good advantage at their monthly meetings by inviting them as speakers. This kind of teamwork has eliminated friction between the medical groups. Working as a team, we feel that we have the patient's best interest at heart.

In summary, I have tried to paint a word picture of our hospital and professional problems. The general practitioner in Tucson is a respected individual who has full privileges in both hospitals except in major surgery. Our hospital problems are lack of money, lack of beds, lack of nurses, lack of adequate house staffs, but no lack of medically indigent patients.

(Continued from Page 644)

meet their health care needs. I am indeed grateful to know of this program. In health as elsewhere in American life, our summons to greatness calls for a lively partnership of individual effort, with action by voluntary agencies and private enterprise and, where necessary, government action at appropriate levels.

As civilization expands, of course, there are many other kinds of challenges — to medicine and to society.

In the beginnings, at the time of Homer, activity and good habits meant good health. We read "that with no aids against bad health, health was generally good because of good habits which neither indolence nor luxury had vitiated."

So — we are constantly called upon for new assessment of our environment, imagination and effort to force and prevent, or to recognize and conquer, these changing problems.

Three thousand years later, an American physician, Dr. George Miller Beard, was writing about diseases that today we would call neuroses. He observed:

"They all occur under similar conditions, and in similar temperaments. They are all diseases of civilization, and of modern civilization and mainly of the 19th century, and of the United States."

Increasing speed of transportation has forced us to revise immigration practices to protect against certain contagious diseases.

Here at home, the rising curve of highway deaths and injuries is another reminder that progress on one front is overlaid by tragedy on another. More than 2.8 million Americans were killed or injured in 1958 alone. Since the automobile first coughed and crawled onto the road, the ranks of its injured and dead have included more than 60 million of us.

Elsewhere new industries present new health hazards in the form of occupational diseases. Millions are exposed to new health risks brought on by an exploding urbanization bringing with it contamination of the air and pollution of our streams.

In an age of ceaseless challenge our society looks to, and understandably expects from, the medical profession a dynamic response. Accelerated progress must lead to the mastery not only of the newer threats to human health and vigor, but the age-old scourges of cancer, dis-

(Continued on Page 654)



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(Continued from Page 652)

eases of the heart and mind, and disorders of the central nervous system.

And let us not forget the common cold. Medicine provides one field in which all humankind can unite against a common enemy — disease. And beyond and above this battle, we must still tirelessly work to overcome the most menacing of all our maladies, the social sickness of war and the untold suffering it brings upon us.

Members of the medical profession, peace and ennoblement of the human spirit are the common aims of free societies. True to our country, to the cause of freedom and to our God, we shall pursue these aims, without ceasing or tiring. So doing, we shall one day establish a durable world community of peace-loving nations in which suffering born of strife will be known no more. In bringing about this happy result, no one can or will do more than the doctors of medicine.

THE ARIZONA MEDICAL ASSOCIATION, INC.

LOCATION INQUIRIES

BOBECK, CHARLES J., M.D., 48 North Main St., Canandaigua, N. Y.; *GS*; 1936 graduate of the University of Rochester, School of Medicine; two years rotating internship at Genesee Hospital and Strong Memorial Hospital in Rochester, N. Y.; served residencies at Genesee Hospital, Clifton Spring Sanitarium and Clinic; holds license in State of New York; fulfilled military obligations; interested in group or associate practice; age 49; married; available July 1, 1959.

CARMAN, GEORGE HENRY, M.D., 1338 Bryan Ave., Salt Lake City, Utah; *I*; 1951 graduate of Cornell University Medical School; interned at Barnes Hospital in St. Louis, Mo.; served residencies at Barnes Hospital, Salt Lake General Hospital and Salt Lake VA Hospitals; fulfilled military obligations; holds license in State of Utah; interested in clinic, assistant or associate practice; age 31; single; available July 1, 1959.

CLAPP, PAUL, M.D., Dothan Road, White River Junction, Vt.; *GS*; 1952 graduate of Harvard Medical School; interned at New York Hospital in New York City; served residencies at New York Hospital and Dartmouth Hospital; fulfilled military obligations; interested in group

AMA PUBLICATIONS — MEMBERSHIP BENEFITS

THE HOUSE of Delegates of the American Medical Association on decision of the board of trustees and amendment to the by-laws adopted, has determined that membership dues will include subscriptions to *The Journal of the American Medical Association*, the *AMA News*, *Today's Health* and any one of the AMA specialty journals of the members choice.

JESSE D. HAMER, M.D.,

Arizona Delegate to AMA

or associate practice; age 36; married; available Feb. 1, 1960.

CLARK, ROSS JAMES, M.D., 2851 Brentwood Road NE, Washington 18, D. C.; *Ob-Gyn*; 1956 graduate of Harvard Medical School; interned at George Washington University Hospital in Washington, D. C.; served residency at D. C. General Hospital and Freedmans Hospital (rotating); fulfilled military obligations; holds license in District of Columbia and Maryland; interested in assistant or associate practice; age 31; married; available July 1, 1961.

CLOTHIER, BARRY A., M.D., 523 "F" Street, Salt Lake City, Utah; *GP*; 1958 graduate of University of Utah Medical School; interned at Salt Lake General Hospital; military status — current student deferment; interested in group, assistant or associate practice; age 27; married; available Sept. 1, 1959.

CROZIER, WALLACE ALLEN, M.D., 5219 Halsey, Shawnee, Kan.; *Pd*; 1955 graduate of the University of Colorado Medical School; interned at Kansas City General #1; served residency at Children's Mercy Hospital in Kansas City, Mo.; fulfilled military obligations; holds license in State of Colorado; interested in group practice — would consider partnership, solo or institutional practice; age 30; married; available July 1960.

DETJEN, EDWARD, M.D., Bigfork, Minn.; *GP*; 1943 graduate of Wisconsin Medical School;

interned at John Sealy University of Texas in Galveston; holds license in states of Wisconsin and Minnesota; fulfilled military obligations; interested in group, assistant or associate practice; age 41; married; available immediately.

DISHON, MARGARET PEOPLES, M.D., 103 Erskine Place, San Antonio, Tex.; *GM*; 1956 graduate of Ohio State University Medical School; interned at St. Rita's Hospital in Lima, Ohio; 3 years extern at Children's Hospital in Columbus, Ohio; 3 months post graduate work at St. Joseph's Hospital in Flint, Mich.; holds license in State of Ohio; interested in group practice; age 35; married; available Aug. 1, 1959.

DISHON, NEIL H., M.D., 103 Erskine Place, San Antonio, Tex.; *GM*; 1956 graduate of Ohio State University Medical School; interned at St. Rita's Hospital in Lima, Ohio; 3 years extern at Children's Hospital in Columbus, Ohio; 3 months post graduate work at St. Joseph's Hospital in Flint, Mich.; holds license in State of Ohio; fulfilled military obligations; interested in group practice; age 34; married; available Aug. 1, 1959.

FRYER, RONALD E., M.D., 33131 Klein Ave., Fraser, Mich.; *Ob-Gyn*; 1952 graduate of Royal College of Physicians of London; interned at London Hospital and Brighton General; served residency at St. Joseph Hospital in Ann Arbor, Mich. and Grace Hospital in Detroit, Mich.; holds licenses in states of Michigan and Ohio; fulfilled military obligations; interested in group practice; age 33; single; available immediately.

GRAUSE, THOMAS J., M.D., 112 Sunset, Warrington, Fla.; *Ob-Gyn*; 1952 graduate of University of Cincinnati College of Medicine; interned at Los Angeles County Hospital; served residency at Cincinnati General Hospital in Cincinnati, Ohio and The Mount Sinai Hospital in New York City; holds license in State of Ohio; military status — on active duty; interested in clinic, assistant or associate practice; age 35; married; available August 1959.

HANDY, JR., RICHARD, M.D., 906 Stiles Ave., Youngstown, Ohio; *S*; 1954 graduate of Meharry Medical School in Nashville, Tennessee; interned and served residency at Youngstown Hospital Association in Youngstown, Ohio; holds licenses in states of Kentucky and Ohio; fulfilled military obligations; age 33; married; race, Negro; interested in group, assistant or institutional practice; available July 10, 1959.

JACKS, NATHAN BENJAMIN, M.D., 900 Giles East, Windsor, Ontario, Canada; *PH*; 1939 graduate of University of Toronto Medical School; interned at Mt. Sinai Hospital in Toronto; interested in public health service or would consider institutional practice; age 44; married; available Dec. 15, 1959.

LANGSJOEN, PER H., M.D., 3408 Diamond, El Paso, Tex.; *Ca-I*; 1950 graduate of the University of Minnesota School; interned and served residency at Letterman Army Hospital in San Francisco, Calif.; military status — presently in active service; holds license in State of Minnesota; interested in clinic, assistant or associate practice; age 38; married; available immediately.

LEVINE, STANLEY DAVID, M.D., 1845 Parker Road, Minneapolis 26, Minn.; *Ob-Gyn*; 1954 graduate of State University of Iowa Medical School; interned and served residency at Jefferson Davis Hospital in Houston, Tex.; holds license in State of Iowa; fulfilled military obligations; interested in group or associate practice; age 30; married; available July 1, 1960.

LIPSCHUTZ, HAROLD, M.D., 8624 South Maryland Ave., Chicago, Ill.; *R*; 1954 graduate of Jefferson Medical College of Philadelphia; interned at Albert Einstein Medical Center Southern Division in Philadelphia; served residency at U. S. Veterans' Hospital in Philadelphia (radiology including nuclear medicine); holds licenses in states of Illinois, Indiana, California and Pennsylvania; fulfilled military obligations; interested in associate, partnership or hospital practice; age 33; single; available immediately.

MAHONEY, RICHARD EDWARD, M.D., 85 East Birch Lane, Rommey, W. Va.; *S*; 1945 graduate of Tufts College of Medicine; interned at U. S. Naval Hospital in Portsmouth, Va.; served residencies at General Elyria Hospital in Elyria, Ohio and St. Alexis Hospital in Cleveland; holds licenses in states of Massachusetts, California and National Board of Medical Examiners; fulfilled military obligations; interested in group or associate practice; age 38; married; available immediately.

MILLER, HOWARD, M.D., 106 Martin Drive, Walker Village, Killeen, Tex.; *I*; 1955 graduate of State University of New York Medical School; interned at Denver General Hospital; served residency at St. Luke's Presbyterian and Colorado General Hospitals in Denver; holds license

in State of Colorado; fulfilled military obligations; interested in group or associate practice; age 31; married; available July 6, 1960.

ROBINSON, RALPH M., M.D., Box 19, Fort Logan, Colo.; S; 1954 graduate of the Medical College of Virginia; interned at University of Minnesota Hospitals in Minneapolis; served residency at VA Hospital in Denver; holds license in State of Colorado; fulfilled military obligations; interested in clinic practice; age 32; married; available July 1, 1959.

ROBINSON, SAM LESLIE, M.D., University Medical Center, Jackson, Miss.; S; 1953 graduate of the University of Tennessee Medical School; interned at John Gaston Hospital in Memphis; served residency at University of Mississippi Medical Center in Jackson; holds licenses in states of Tennessee and Mississippi; fulfilled military obligations; interested in assistant or associate practice; age 30; married; available July 1961.

SCHWARTZ, WILLIAM, M.D., 1 Peach Tree Lane, Hicksville, N. Y.; Pd; 1950 graduate of The Chicago Medical School; interned at Coney Island Hospital in Brooklyn; served residency at Maimonides Hospital in Brooklyn; holds license in State of New York; interested in assistant or associate practice; age 36; married; available September-October 1959.

SHOEMAKER, RICHARD L., M.D., 211 East A Street, Gas City, Ind.; GP; 1954 graduate of Indiana University Medical School; interned at Indianapolis General Hospital; holds license in State of Indiana — applied for license in State of Arizona; fulfilled military obligations; interested in assistant or associate practice; age 30; married; available October 1959.

TOKE, J. N. R., M.D., Fairfield State Hospital, Newtown, Conn.; GP-P; 1949 graduate of London University Medical School; interned at Hacuney Hospital in London; served residency at Fairfield State Hospital; age 35; married; available immediately.

WEHLING, BENJAMIN BIRD, M.D., 5852 Kungle Road, Clinton, Ohio; Anes; 1944 graduate of University of Maryland Medical School; interned at City Hospital in Akron, Ohio; served residency at St. Catherines Hospital in Brooklyn and Western Reserve University in Cleveland, Ohio; fulfilled military obligations; holds licenses in states of Maryland and Ohio; interested in group, associate or institutional practice; age 40; married; available — 60 days.

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EL MIRAGE — Population 2,000 — including the trading areas of Surprise, Youngtown, Peoria and Luke Air Force Base — the population is estimated at 7,000 to 8,000 persons. Opportunity for a GP due to retirement of doctor currently serving, with the possibility of school service. Climate is excellent, warm and dry. Office facilities are available and in the area surrounding El Mirage from Glendale (nine miles) to the east, and Wickenburg (35 miles) to the west there are only two doctors to serve this community. The need for an M.D. and/or surgeon is very real and one should do very well. For information write Mr. H. Faulkner, Town Clerk, Town of El Mirage, El Mirage, Ariz.

GILA BEND — Population 2,500 — 80 miles west of Phoenix — Nearest town to the Painted Rock Dam Project — Good opportunity for GP. Cattle, cotton and general farming. Office and equipment available. \$150 monthly income from board of supervisors. Contact Mrs. J. F. Allison, Box 485, Gila Bend, Ariz.

GLOBE — Population 10,000, including the mining and cattle areas of Miami, Superior, Ray, Hayden, Winkleman, Payson and San Carlos; population estimated at 30,000 persons. Located about one hour by car from either Tucson or Phoenix. No ENT man in the area. Ideal climate, with the best area for outdoor activities. Contact Eugene R. Rabogliatti, D.D.S., 149 S. Broad St., Globe, Ariz., or Ellis L. Pollock, M.D., Miami Inspiration Hospital, Miami, Ariz.

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References: 1. Lhotka, F. M.: Illinois M. J. 112: 259 (Dec.) 1957. 2. Fabricant, N. D.: E.E.N.T. Monthly 37:460 (July) 1958. 3. Farmer, D. F.: Clin. Med. 5:1183 (Sept.) 1958.

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MIAMI — Opportunity for GP — Industrial hospital staffed by approximately seven doctors, who care for personnel and families of those who work for the three principal mining companies. Community served by many mining and ranching interests. Contact Robert V. Horan, M.D., Miami Inspiration Hospital, Miami, Ariz.

MORENCI — Mining community near New Mexico-Arizona border. Population 10,000. Has vacancy at hospital for GP. Contact Carl H. Gans, M.D., Morenci Hospital, Morenci, Ariz.

PAGE — Population growing by leaps and bounds at the site of the new Glen Canyon Dam project. Current estimates are 6,000 to 8,000 total. Only one M.D. is now located in Page and he has facility available. Located about 90 miles north of Flagstaff, Ariz., the building project is estimated to be concluded in 10 years. Write Ivan W. Kazan, M.D., 6th Ave. & S. Navajo, Page, Ariz., for full details.

PAYSON — Staff doctor for small country clinic hospital. Located in the heart of one of the fastest growing residential, recreational areas in the state. One hundred miles northeast of Phoenix on fine, paved, scenic highway, this clinic, operational two years, has been forced to expand into a 12-bed hospital, with facilities for further expansion at an early date. Wonderful opportunity for large and rapidly growing private practice. Elevation, 5,000 feet. Fine year 'round climate, excellent for asthmatics. Surrounding country is forested and abounds in fish and game, with excellent facilities for camping, riding and hiking. For further information, contact Mrs. Edward Taylor, Section Payson Clinic Inc., Payson, Ariz.


PHOENIX — State Department of Health — Child Development Center. Opportunity for doctor of medicine (Pd) with three years' experience. Male or female. Monthly salary \$690 — full time. Operation includes (a) a doctor of medicine (Pd); (b) two or three psychologists on a consultant basis; (b) a psychiatric social worker; (d) a teacher specializing in child development; and (e) clerical people as required. Scope: Mentally retarded or emotional problems of preschool children. Available July 1, 1959. Contact Mr. Thomas Golden, Arizona Merit

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ST. JOHNS — Seriously need a doctor of medicine, preferably a GP, in this east central Arizona community. Population is approximately 1,500 with several other small towns in the general area. About 20 miles from New Mexico in the beautiful rim country of Arizona. Contact Donald F. DeMarse, M.D., Box 397, Holbrook, Ariz.

TOLLESON — In need of GP. Serves a trading population of from 12,000 to 15,000. Ten miles west of Phoenix, with elementary and high schools, churches of all denominations. Complete office and equipment for GP is available on reasonable term lease or purchase. Contact Mr. F. E. Babcock, President, Chamber of Commerce, 9112 W. Van Buren St., Tolleson, Ariz.

TUCSON — The VA Hospital is in urgent need of an orthopedic surgeon. They prefer someone who is board certified, but would take someone who has had special training as they have the local men in this field available for consultation service. State license is necessary (but not necessarily an Arizona license). Contact S. Netzer, M.D., Director, Professional Service, VA Hospital, Tucson, Ariz.



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Women's Auxiliary

REPORT OF THE NATIONAL CONVENTION, ATLANTIC CITY, N. J.

Mrs. Hiram D. Cochran, President

ATLANTIC CITY truly lived up to its name of Convention City for the 1959 AMA annual meeting. There were 13,143 physicians and 19,739 exhibitors and guests registered. This was the biggest physician attendance at an Atlantic City AMA meeting since the association centennial there in 1947. Nearly 1,500 doctors' wives registered for the 36th annual meeting of the Women's Auxiliary to the American Medical Association. The weather was perfect for the entire week, and the entertainment as provided by Mrs. Allman and her committees was superb.

In addition to the president, Arizona delegates were Mrs. Jesse Hamer and Mrs. Leslie Kober, of Phoenix.

The amendment to Article 5, Section 3 of the by-laws which Arizona proposed was adopted, and this entire section pertaining to re-instatement of members will now be deleted from the by-laws. During the discussion period on this subject, the delegates from Arizona were very happy to find that with the exception of only one state, we had the backing and approval of the entire house of delegates.

At the luncheon given by the Today's Health staff honoring the states with the highest subscriptions, which I was privileged to attend, it was announced that after July 1, 1959, Today's Health would no longer be handled through the Auxiliary. From now on, each physician will receive a subscription for the waiting room as a part of his AMA dues, just as he receives the AMA Journal and AMA News.

Of course, one of the high high-lights of the meeting was the presence of President Eisenhower as featured guest and special speaker at the inauguration of Dr. Louis M. Orr of Orlando, Fla. as AMA's 113th president.

Some of the outstanding speakers to the Auxiliary were Lt. Col. Ingalls H. Simmons, who spoke on civil defense; Dr. George Fister, who spoke on legislation; and Dr. Marvin Block, chairman of the committee on alcoholism, AMA Council on Mental Health.

Mrs. Frank Gastineau was installed as president, and stated that all of the goals of the

Auxiliary can be reached if we are willing to accept "individual responsibility for better community health." We need every member giving her knowledge, her creative ability and her energy to the Auxiliary program.

It was, as always, a wonderful experience and privilege for me to attend another meeting as one of Arizona's representatives.

PAST PRESIDENT'S REPORT

Highlighting an active and productive 1958-59 Auxiliary year, a contribution of over \$1,500 topped the national goal for Arizona and represented full participation with each county conducting various money raising methods to meet our quota for support of medical schools through the American Medical Education Foundation.

Reports of community service hours indicated generous volunteer assistance to health and welfare agencies throughout the state. Financial as well as service aid in philanthropic programs was given in receptive locales in addition to specific Auxiliary projects with the smaller counties generally contributing to numerous causes and the larger counties leaning toward larger contributions to select services. Hospital services were commonly contributed.

Legislative contact in support of the Jenkins-Keogh bill was emphasized, and local legislative promotion centered around high school driver education.

Recruitment for paramedical careers continues to be an outstanding phase of our program. The film produced by the Maricopa Auxiliary has been widely used in Arizona, and we proudly complied with national's request to preview it for the national convention in Atlantic City.

All counties participated in mental health activities, with Pima taking the lead in representation at the president's conference on the aged. Co-operation with local groups made service in many fields possible.

Another outstanding program in civil defense placed emphasis on immunizations and courses in home nursing, first aid and survival aid.

Reviewing past accomplishments serves only as a springboard for the achievements that lie ahead as we prepare for the new season with new leadership in the same quality Auxiliary program.

MRS. MELVIN W. PHILLIPS,
Arizona President, 1958-59

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